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FEBRUARY | 1958

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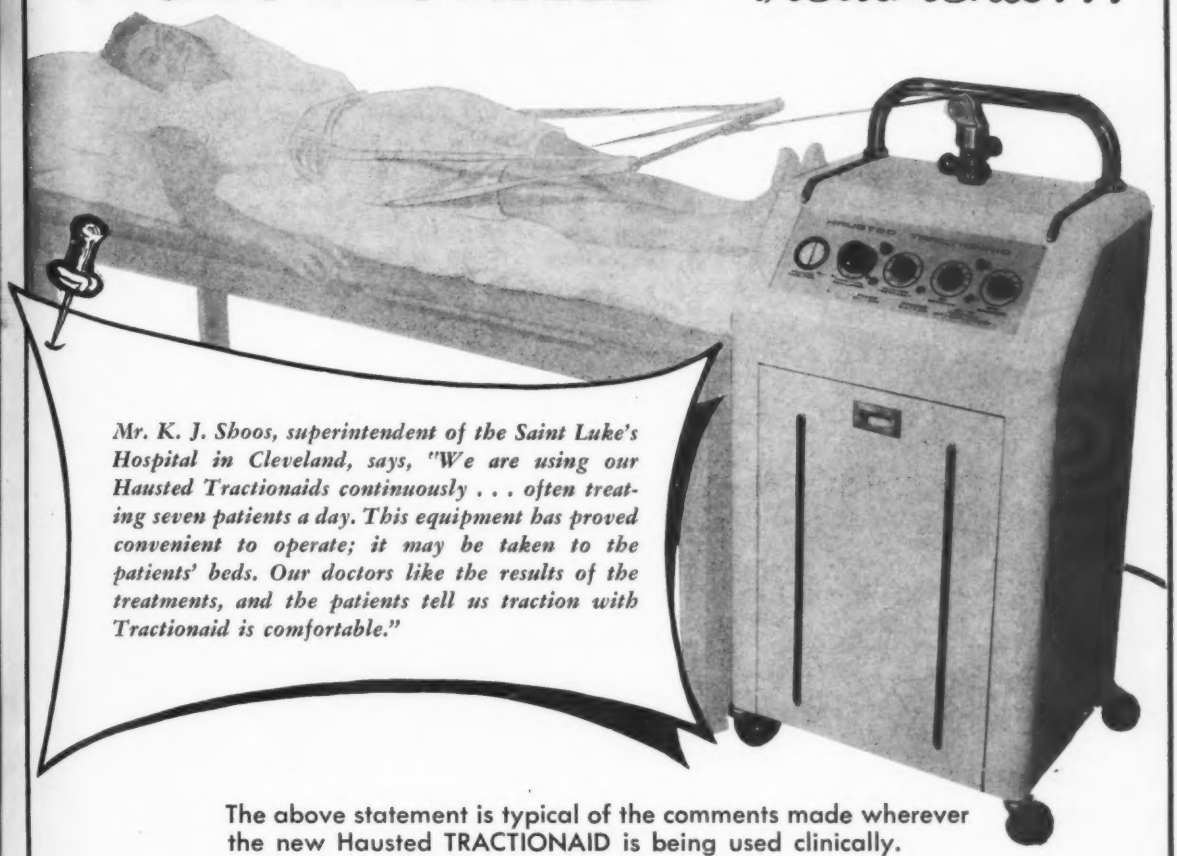

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HOSPITAL Topics

GRAPHIC REPORTING ON TODAY'S HOSPITAL PRACTICES

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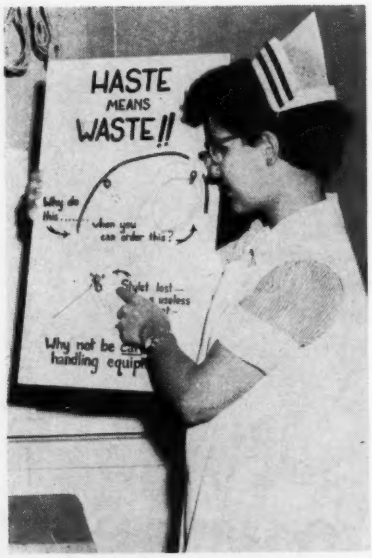

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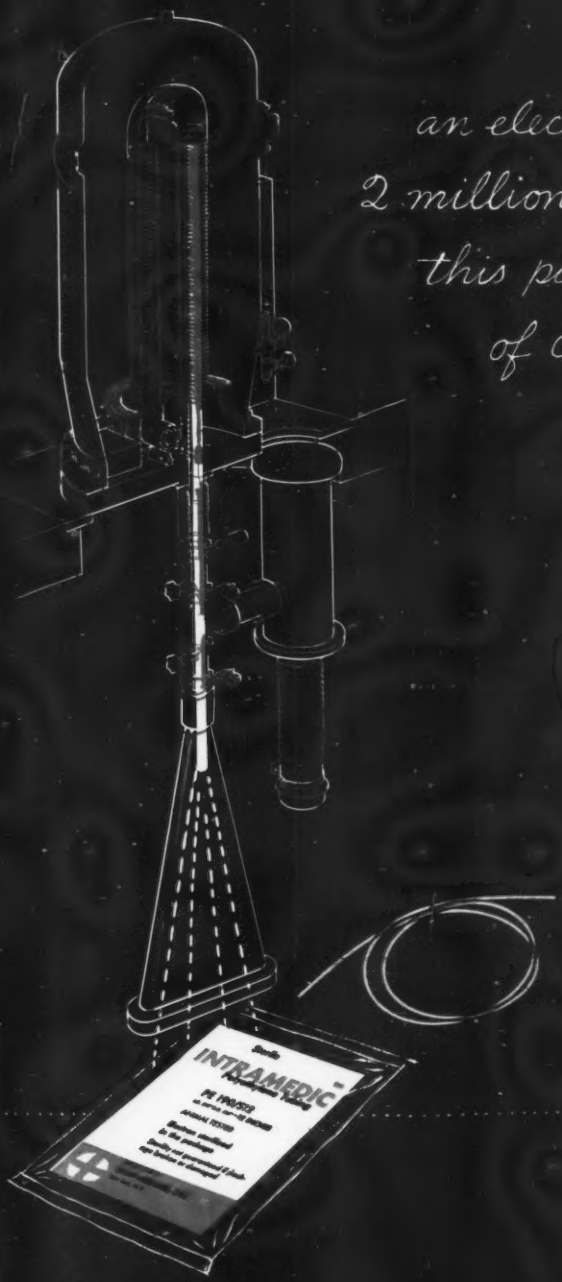

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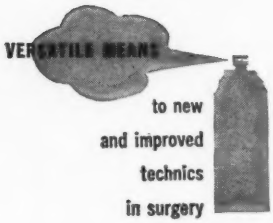

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PERSONALITY OF THE MONTH

SINCE almost a century ago, the family of Charles S. Paxson, Jr., has been associated with the Hahnemann Medical College and Hospital of Philadelphia, which Mr. Paxson now serves as administrator.

His grandfather, Thomas S. Dunning, M.D., was graduated from the school in 1869, 20 years after its founding.

Early in Mr. Paxson's professional career he spent several years on the staff at Hahnemann. He was office manager when he left in 1941. After 15 years as administrator of Delaware County Hospital, Darby, Pa., he returned to Hahnemann last year as administrator.

The members of his staff are his greatest concern as administrator. He believes that the "personalities of the personnel in a hospital lend personality to the bricks and mortar of the institution." Individuality is easier to retain in a small hospital than in a large one—yet it is increasingly important in the large institution.

A native of Philadelphia, Mr. Paxson was graduated from Temple University, with a bachelor of science degree in accounting.

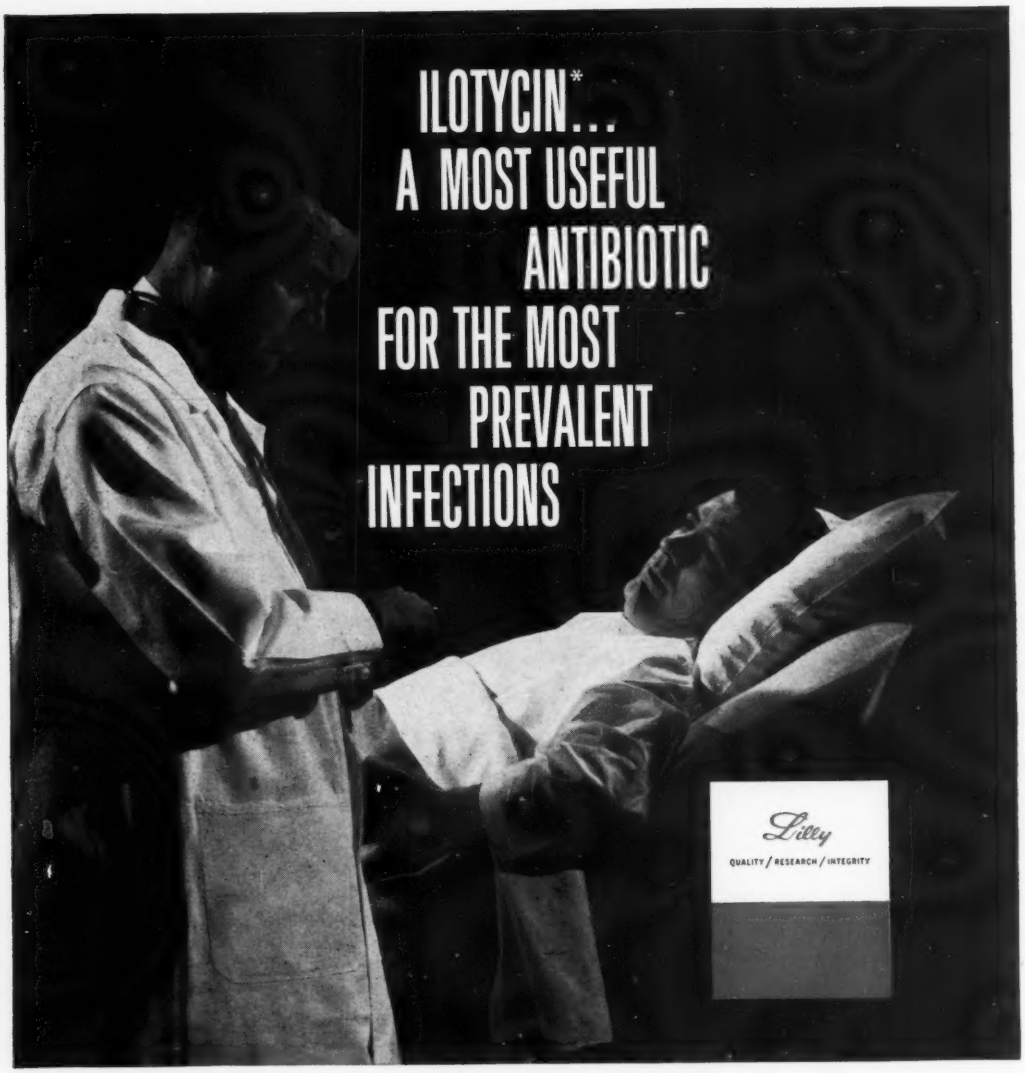
Among the organizations he has served as president are the Hospital Association of Pennsylvania, the Philadelphia Hospital Association, the Philadelphia Association of Hospital Accountants, and the advisory board of the Hospital Council of Philadelphia.

He is a member of the American Hospital Association and the American Association for Hospital Planning, and is a Fellow in the American College of Hospital Administrators.

He participates in many civic projects as well, and has been active in the Red Cross, the National Foundation for Infantile Paralysis, and the Tuberculosis and Health Association. He is also a member of the Philadelphia Rotary Club.

Despite his busy schedule Mr. Paxson keeps physically fit by swimming the year 'round at the Philadelphia YMCA. Another hobby is stamp collecting.

Mr. Paxson and his wife, Katherine, live in Lansdowne, a suburb of Philadelphia, with their sons, Stanley, 12, and Stephen, 10. The boys share their father's liking for swimming and enjoy ice skating in winter.



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HOSPITAL Topics
The News Magazine for the Hospital Staff

FEBRUARY, 1958
VOL. 36, NO. 2

Scanning the News

"Meals" of Radioactive Fat Tool for Artery Studies

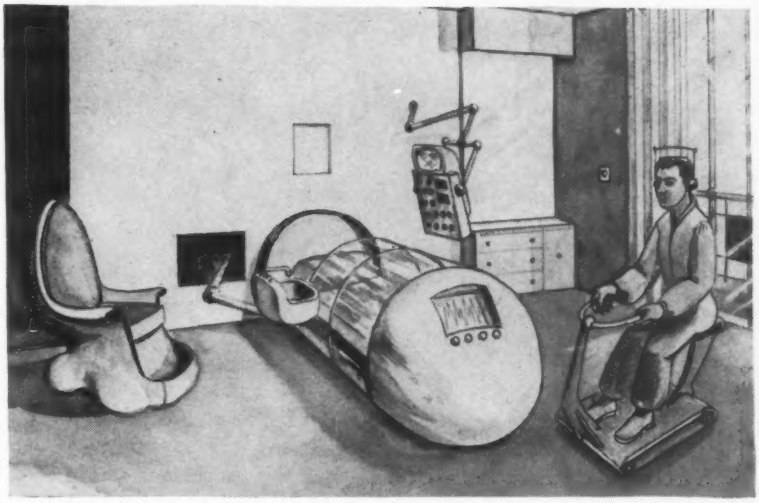
Test "meals" of radioactive fat offer a new and promising method of following the fate of ingested fats in the body, a team of Philadelphia researchers said at the recent meeting of the American Heart Association.

William Likoff, M. D., Donald Berkowitz, M.D., Asher Woldow, M.D., and Gerson Jacobs, all of Philadelphia, gave Triolein tagged with radioactive iodine to four groups of patients to determine how they handle fatty substances, such as cholesterol, carried in the blood. Results indicate that in patients with known coronary artery disease, fat turnover in the body is considerably slower than it is in normal subjects. This tends to confirm the presence of a metabolic error in patients with coronary atherosclerosis.

The first of the four groups given the test meal was composed of normal "control" patients. The second group included patients with high blood levels of cholesterol but no evidence of coronary disease; the third, patients with coronary disease but normal blood cholesterol levels; and the fourth, patients with both coronary disease and high cholesterol levels. After the test meal had been eaten, blood samples were taken at regular intervals for 24 hours and tested for radioactivity.

In the normal controls, the blood was most radioactive within six hours after the meal, indicating peak absorption of fat by the blood. The peak was about 16 percent of the fat eaten. Twenty-four hours later, less than five percent remained in the blood.

In the other three groups, peak radioactivity occurred later and there was more of it, indicating greater absorption of fat by the blood. More was retained after 24 hours, also. Thus, the abnormality after ingestion of a fat meal was similar in patients with coronary artery disease and those without signs of the disease but with high blood cholesterol levels.



What the typical hospital room of 1987 might look like is depicted in this artist's sketch. Patient sits in automatic wheelchair, in air-conditioned, air-filtered room whose temperature automatically adjusts itself. Bed features a mattress equipped to be attached to a conveyor belt which will allow patient to be transported to surgery, x-ray, or laboratory and back again without being transferred to a cart. Beside bed is control panel of buttons enabling patient to call whole array of hospital services into immediate action. Two-way television unit connects patient with nursing station, and electronic construction on bed allows nurse to check temperature and pulse by pressing a button. Projection of future hospital was made in connection with addition now being built at Franklin Boulevard Community Hospital, Chicago.

Shallow Ulcers May Be Peeled Away by Drug

A new treatment which would enable shallow ulcers to be shed was outlined recently by Jerome Weiss, M.D., New York City.

At a meeting of the American College of Gastroenterology, in Boston, Dr. Weiss described tablets containing "plant and chemical extracts" designed to restore the patient's chemical balance. The drug takes effect in 72 hours.

"Like a snake sheds its skin, the lining of the stomach peels away, carrying the ulcer with it if it is a shallow one," he said.

Of 77 patients treated with the drug, none experienced a recurrence within three years and there were no permanent side effects, according to Dr. Weiss.

Assisting him in research on the tablets were his father, Samuel Weiss, M.D., and brother, Bernard Weiss, M.D.

New Test Developed For Rheumatoid Arthritis

A simple and rapid diagnostic test for rheumatoid arthritis has

(Continued on page 130)

topical antibiotic therapy in its most convenient form

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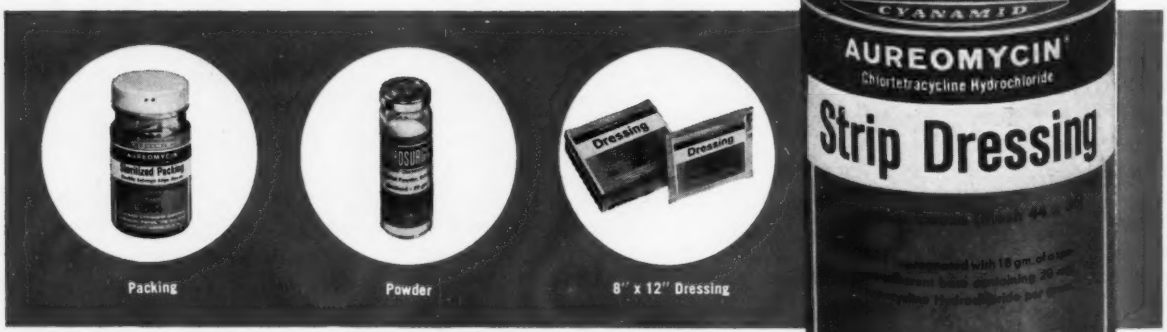

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News Briefs at Press Time

COMMITTEE FOR HOOVER REPORT SEEKS HEALTH SERVICES REFORMS

One of five major administrative reforms sought in this session of Congress by Citizens Committee for the Hoover Report will be enactment of Smith bill, which would create a Federal Advisory Council of Health at sub-Cabinet level possessing great power over health care of veterans, aid to states for hospital construction, training and utilization of medical personnel, and co-ordination of federal and private health resources.

Though passage is by no means assured, bill undoubtedly will get serious consideration.

SENATOR HILL CALLS FOR 'HEALTH FOR PEACE' FUNDS

Sen. Lister Hill (D., Ala.) has called for a "health for peace" crusade in five major parts:

(1) Increased appropriations for heart and cancer research.

(2) Expanded participation in disease control projects on a global basis.

(3) Increased official participation in international meetings on medical subjects.

(4) Exchange visits of American and Soviet experts in heart disease and cancer.

(5) Creation of a world clearing-house on medical research in every category.

CONFERENCE ON OCCUPATIONAL SAFETY PLANNED FOR MARCH

President's Conference on Occupational Safety, scheduled for March 25-27, in Washington, D.C., will include several discussions on medical subjects. Among topics of workshops will be responsibilities of medicine and nursing in prevention of occupational accidents and diseases, radiation hazards, and safety motivation.

President Eisenhower will address the conference on the second day.

BRIEF BRIEFS

---Bill calling for House Veterans Affairs Committee to have the final say on closing of VA hospitals, medical centers, domiciliaries, or regional offices has been introduced by Rep. Phil Weaver (R., Nebr.). HR 10130 would require VA to give committee 90 days notice of intent to close or transfer any such facilities.

---Wheel chairs (both manually operated and self-propelled) and three-wheeled "autoettes" will now be recognized by the Internal Revenue Service as medical equipment and hence a deductible item of medical expense. The autoette must be used by the owner "primarily for the alleviation of his sickness or disability and not merely to provide transportation between his residence and place of employment."

---Color film showing work of a bloodmobile unit in a typical U.S. town has been presented to Gen. Alfred M. Gruenther, Red Cross president, by E. R. Squibb & Sons. Details of methods for obtaining, handling, storing, and processing whole blood are included. Prints will be made available soon at Red Cross chapters participating in the national blood program.

---Two proprietary hospitals, Central Hospital, Inc., Somerville, Mass., and Hughes Private Hospital, West Hartford, Conn., received loans from Small Business Administration in December.

CHANCES FOR JENKINS-KEOGH PASSAGE SEEM IMPROVED

Recent convincing plea made for Jenkins-Keogh bill by representatives of various professions stressed that its enactment would provide a career incentive that would encourage more young people to enter science and engineering.

Because a balanced budget is not deemed an absolute essential this year, chances seem better for a tax cut, and consequently for passage of the Jenkins-Keogh bill.

Gordon M. Marshall

Calendar of Meetings

FEBRUARY

1- 6 American Academy of Orthopaedic Surgeons, Waldorf-Astoria, New York City

1-14 Pan-American Congress of Ophthalmology, Interim meeting, Queen of Bermuda, cruise from New York City

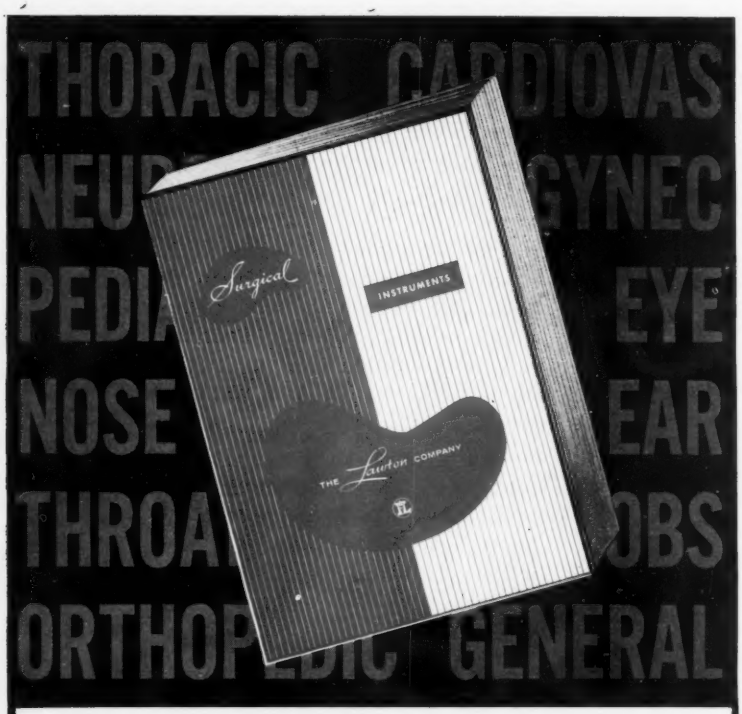
4- 6 Second Illinois Congress on Maternal and Infant Care, Peoria

5- 8 American College of Radiology, Drake Hotel, Chicago

7- 8 American Hospital Association, Mid-year Conference of Presidents and Secretaries of State and Regional Hospital Associations, Palmer House, Chicago

8-11 AMA Congress on Medical Education and Licensure, Palmer House, Chicago

9-11 Congress on Administration, American College of Hospital Administrators, Congress Hotel, Chicago



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9-12 American College of Osteopathic Obstetricians and Gynecologists, Cosmopolitan Hotel, Denver

10-13 Association of Operating Room Nurses, Bellevue-Stratford Hotel, Philadelphia

10-13 American Hospital Association Institute, Nursing Supervision, Shoreland Hotel, Chicago

11-13 National Association of Methodist Hospitals and Homes, Morrison Hotel, Chicago

12-14 American Protestant Hospital Association, Morrison Hotel, Chicago

17-21 American Hospital Association Institute, Hospital Planning and Organization Workshop, Sheraton-Seelbach Hotel, Louisville, Ky.

17-21 1st Eastern Advance Institute, American College of Hospital Administrators, New York City

17-21 Minnesota Institute, American College of Hospital Administrators, Minneapolis

20-21 Georgia Hospital Association, Ralston Hotel, Columbus, Ga.

MARCH

3- 7 American Hospital Association Institute, Personnel Administration for Hospitals, Holiday Inn, Birmingham, Ala.

4- 7 Chicago Medical Society, Palmer House, Chicago

9-12 New Mexico Hospital Association, Hilton Hotel, Albuquerque

10-13 Ohio Hospital Association, Netherland-Hilton Hotel, Cincinnati

10-13 International Congress of the International College of Surgeons, Ambassador Hotel, Los Angeles

12-14 American Hospital Association Institute, Hospital Laundry Management and Operation, Shamrock Hilton Hotel, Houston, Tex.

13 Wisconsin Hospital Association, Hotel Schroeder, Milwaukee

13-15 Tennessee Hospital Association, Hotel Patton, Chattanooga

20-22 Louisiana Hospital Association, Bellemont Motor Hotel, Baton Rouge

23-26 Aero Medical Association, Hotel Statler, Washington, D. C.

(Continued on page 14)

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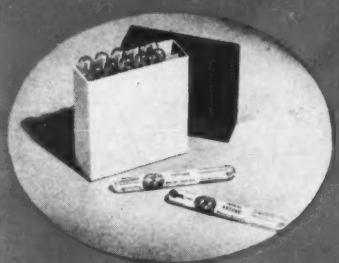

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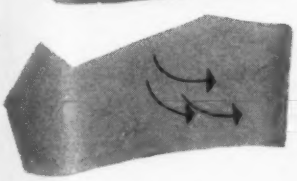

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CALENDAR OF MEETINGS

(Continued from page 10)

MARCH

24-26 Mid-West Hospital Association, Municipal Auditorium, Kansas City, Mo.

24-26 New England Hospital Assembly, Hotel Statler, Boston

24-27 American Academy of General Practice, Memorial Auditorium, Dallas

24-27 Congress of the International Anesthesia Research Society, Jung Hotel, New Orleans, La.

29-30 Eastern Osteopathic Association, Statler Hotel, New York City

APRIL

7-11 American Hospital Association Institute, Planning and Working Together—Dietary, Housekeeping, and Nursing Department Directors, Edgewater Beach Hotel, Chicago

7-11 American Hospital Association Institute, Hospital Engineering Bellerive Hotel, Kansas City, Mo.

14-16 American Hospital Association Institute, Medical Record Library Personnel, Benjamin Franklin Hotel, Seattle

15-17 Kentucky Hospital Association, Sheraton-Seelbach Hotel, Louisville

15-18 National Association for Practical Nurse Education, Hotel De Coronado, Coronado, Calif.

20-22 American Academy of Pediatrics, Spring Session, Hotel Statler, New York City

21-23 The American College of Obstetricians and Gynecologists, Statler Hotel, Los Angeles

21-24 Association of Western Hospitals, Civic Auditorium, San Francisco

22-23 North Dakota Hospital Association, Gardner Hotel, Fargo

24-25 Iowa Hospital Association, Savery Hotel, Des Moines

24-25 Carolinas-Virginias Hospital Conference, Hotel Roanoke, Roanoke, Va.

24-26 American Association of Pathologists and Bacteriologists, Cleveland

28-30 Tri-State Hospital Assembly, Palmer House, Chicago

28-May 1 American Hospital Association Institute, Obstetrical Nursing Service Administration, Hotel Monteleone, New Orleans

28-May 2 American College of Physicians, Convention Hall, Atlantic City, N.J.

MAY

5- 8 Texas Hospital Association, Statler Hilton Hotel, Dallas

12-14 Arkansas Hospital Association, Arlington Hotel, Hot Springs

12-15 American Hospital Association Institute, Central Service Administration, Roosevelt Hotel, Pittsburgh

12-16 American Psychiatric Association, Civic Auditorium, San Francisco

14-16 Southeastern Hospital Conference, Hotel Fountainebleau, Miami Beach, Fla.

14-16 Upper Midwest Hospital Conference, Minneapolis

21-23 Middle Atlantic Hospital Assembly, Convention Hall, Atlantic City, N.J.

21-23 Hospital Association of New York State, Hotel Claridge, Atlantic City, N. J.

21-23 Hospital Association of Pennsylvania, Convention Hall, Atlantic City, N. J.

25-31 World Congress of Gastroenterologic Societies, Sheraton-Park Hotel, Washington, D. C.

26-29 American Hospital Association Institute, Nursing Inservice Program, Antlers Hotel, Colorado Springs, Colo.

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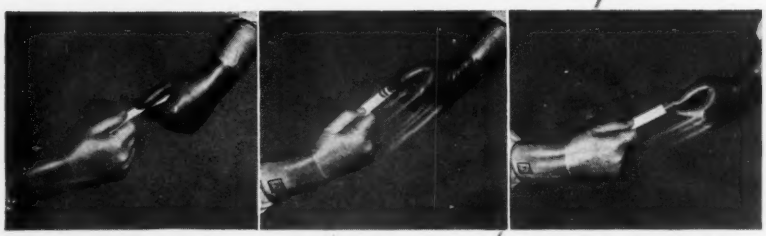

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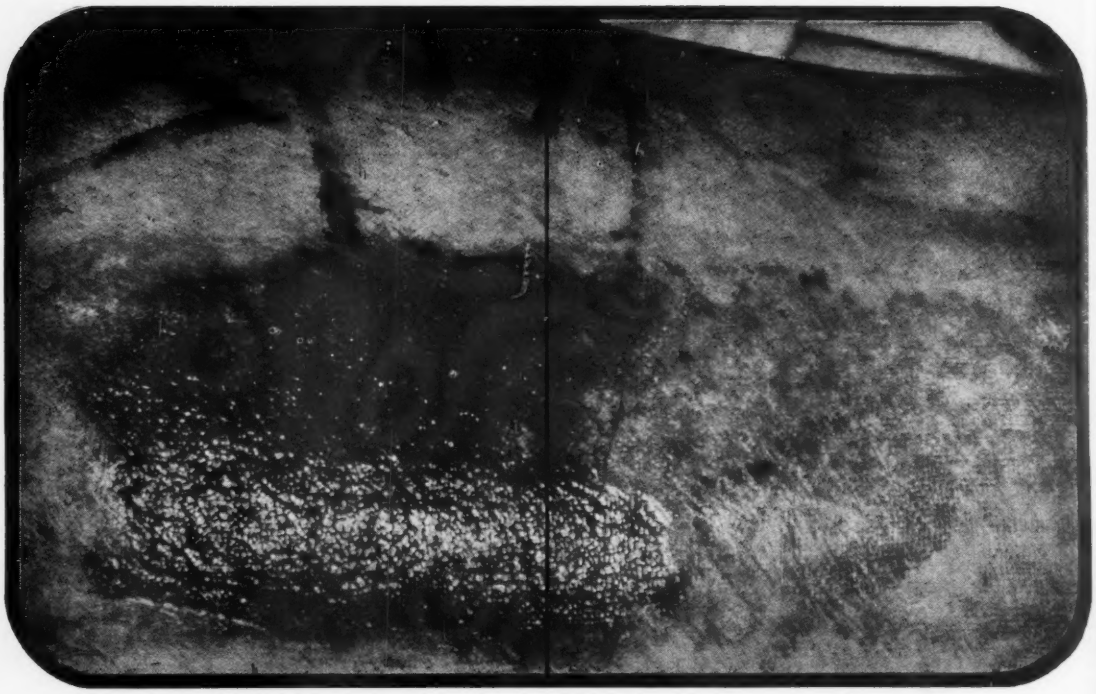

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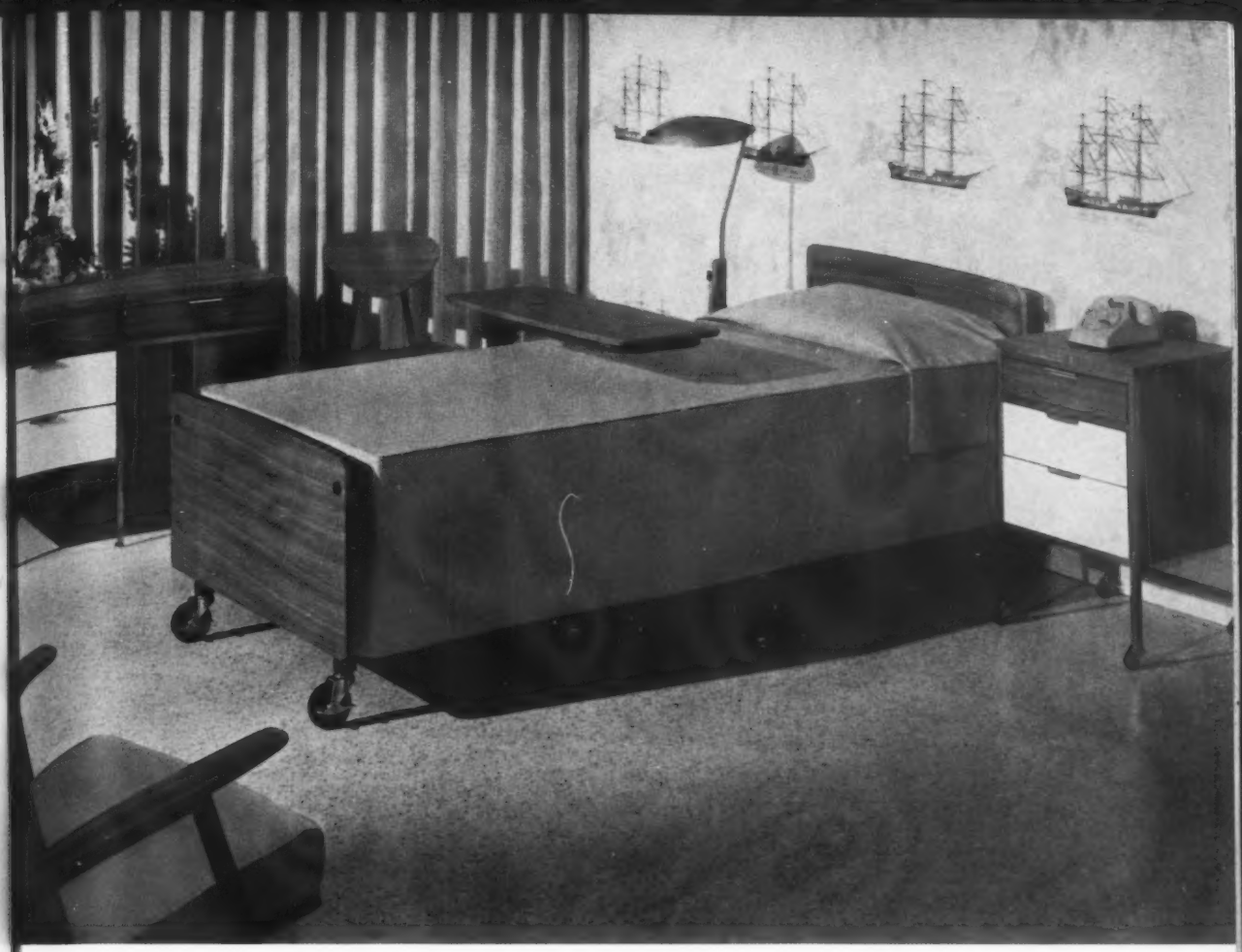

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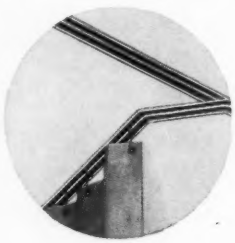

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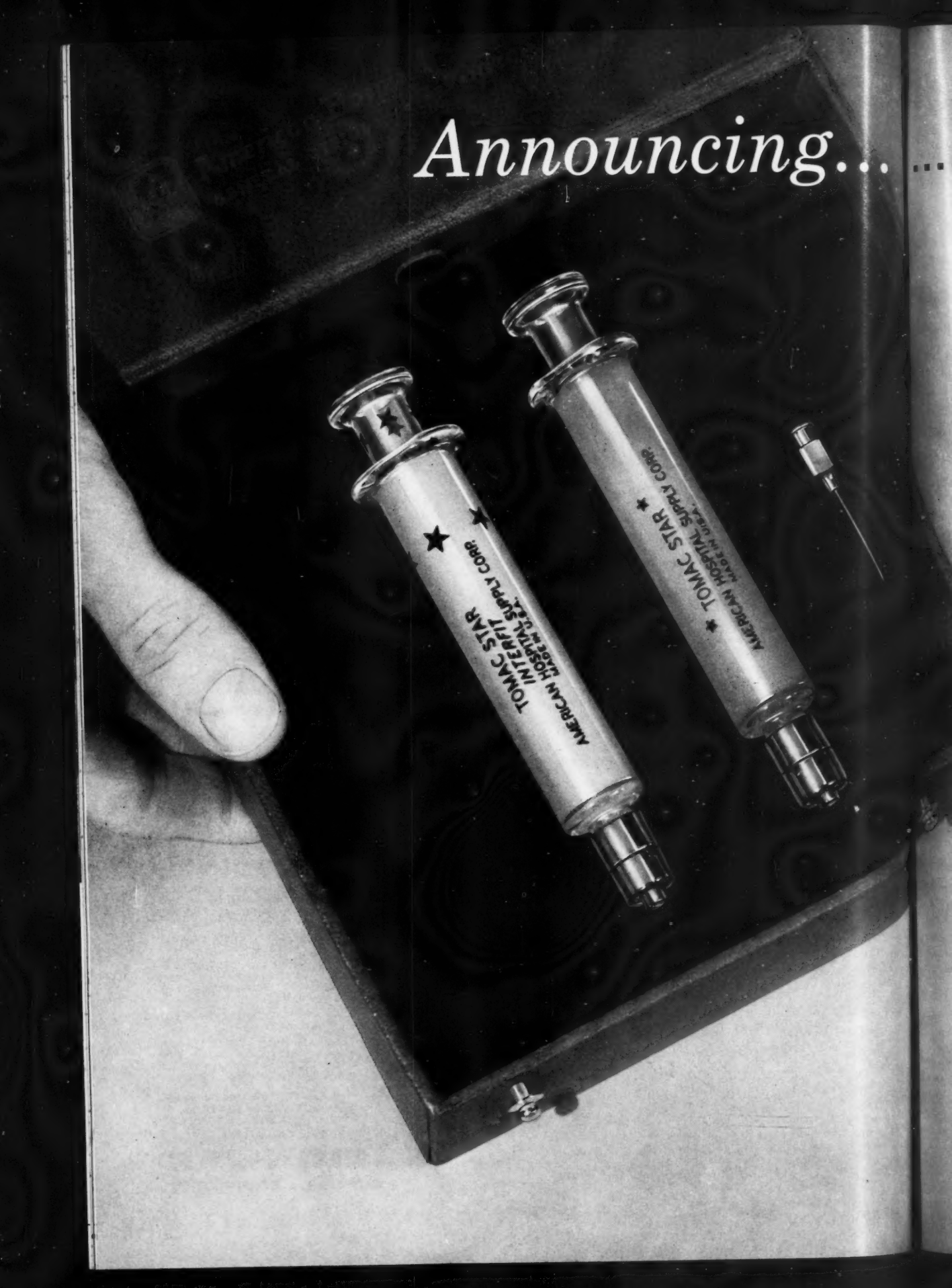
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Space Flight Problems, Salicylamide As Analgesic Discussed at AAAS

From the 124th annual meeting of the American Association for the Advancement of Science, held at the end of December in Indianapolis, HOSPITAL TOPICS presents abstracts of selected papers.

Tranquilizing Drugs Open New Avenues for Research

Seek Tools to Clarify Behavioral Analysis

Recent public interest in tranquilizing drugs and their impact in clinical use, have opened major avenues for research.

One of these involves the potentialities of drugs as new tools for clarifying the problems of behavioral analysis and for relating these to the functioning of the nervous system.

A critical need exists for a well-defined, well-established criterion for the effectiveness of drugs on psychiatric patients. This criterion should take into consideration the interacting elements of biological, psychological, and social factors in the patient's makeup, which relate to changes in his behavior.

A good deal of effort is being expended on the development of this criterion.

A new concept, "behavioral toxicity," has been suggested as one to take its appropriate place with the well-established concerns of the pharmacologist for organ and tissue toxicity.— *Sherman Ross, Ph.D.*, professor of psychology, University of Maryland, College Park.

Experiments May Result In New Analgesic Agent

Salicylamide Distribution Studied with Isotopes

Experiments in the Bio-Nucleonics Laboratory of Purdue University indicate that salicylamide, a derivative of salicylic acid, may potentially be a most useful analgesic agent.

The body distribution of salicylamide was studied in the rat, using salicylamide labeled with a radioisotope of carbon, C^{14}. The drug was administered orally. Thirty minutes later an analysis was made to determine the C^{14} content of brain, heart, lungs, kidneys, liver, spleen, adrenal glands, and blood.

The amount of drug or its metabolic products present in brain tissue was 1.7 times greater than that found in the blood. This would indicate that the drug is readily removed from the circulation and that it is able to penetrate brain tissue. The amount is eight times greater than that found for aspirin by other workers in a similar study.

Previous studies have shown that salicylamide produces none of the side-effects common to aspirin and that salicylamide is from four to six times as potent as aspirin as an analgesic.

We have a clue as to what the reason for this finding may be—namely, that a greater quantity of the drug is able to penetrate the brain tissue.—*William F. Bousquet* and *John E. Christian*, department of pharmaceutical chemistry, School of Pharmacy, Purdue University, Lafayette, Ind.

Theory Concerning Release Of Histamine Is Revised

Find Reactions Due To Other Factors

Many of the reactions which were believed to be related to the local release of histamine are now known to be associated with the elaboration of a variety of substances.

This is especially true of the skin which is rich in mast cells, believed to be one of the major depots of highly active agents such as histamine, 5-hydroxytryptamine, heparin, and proteases. The response to injurious agents is known to be associated in the skin with the disruption of the mast cells in conjunction with a marked impairment of the blood flow through the affected area.

Recent experiments on rats and rabbits have shown that the local reaction to bacterial endotoxins involves a change in the attitude of vascular smooth muscle and capillary endothelium towards epinephrine, whereby normally tolerated concentrations now cause intense vasospasm and extensive damage to the capillary vessels.

The hemorrhage reaction produced in the skin by successive doses of endotoxin could be reproduced by using epinephrine instilled into the skin as the test challenge. The hypothesis was then advanced that tissue damage of this type involves an interference with the chemical systems which handle epinephrine, possibly those concerned with its inactivation.—*Benjamin W. Zweifach, Ph.D.*, associate professor of pathology, New York University-Bellevue Medical Center, New York City.

Look to Medical Record Librarian in Drug Toxicity

FDA Banks on Them To Evaluate Reactions

The tremendous use of drugs for treating all kinds of disease is creating a serious problem for the Food and Drug Administration.

When a new drug is given for the treatment of thousands of patients over a long period, occasional adverse reactions occur which did not appear during laboratory testing. To meet the situation, the FDA is trying to establish routine reporting by hospitals of all cases of adverse drug reaction.

To achieve this goal, the agency is pinning its hopes on medical record librarians. However, it is necessary to arouse the interest also of hospital administrators, hospital pharmacists, and physicians, and it is desirable to provide time for this additional work load without adding to the cost of patient care.

This might be accomplished either by simplifying present record procedures or by tapping some of the funds available for medical research. If such support is provided, a pilot study has demonstrated that medical record librarians are in a position to render an outstanding service in safeguarding public health.—*Dorothy L. Kurtz*, chief medical record librarian, Columbia-Presbyterian Medical Center, New York City.

Space Flight Possibilities Are Increased by Science

Basic Biological Problems Fall in Five Categories

Advances in aviation, rocketry, biology, and other sciences indicate ever-increasing trends toward the possibility of space flight.

The major basic biological problems are grouped in five primary categories:

(1) Those associated with the attainment of high speed and penetration of the atmosphere at those speeds; (2) those resulting from loss of life-sustaining qualities of the earth's atmosphere; (3) those resulting from the loss of protection afforded by the filtration qualities of the atmosphere; (4) those due to propellants, and (5) the problem of survival.—*Col. Paul A. Campbell*, USAF (MC), special assistant for medical research headquarters, Air Force Office of Scientific Research, Washington, D. C.

See Unconscious Pilot On Interplanetary Flight

Body Metabolism May Be Reduced

The interplanetary pilot of the future may have to be unconscious during a two-year flight to cut down on eating and to beat the psychological hazards of boredom.

Such basic bodily functions as eating, drinking, breathing, and eliminating waste become highly complex actions in the weightlessness of space, away from the pull of gravity, where nothing can be taken on or thrown overboard.

Equally challenging are the psychological problems. The reactions of men in submarines or solitary confinement have been tested, but they do not provide answers to the problems faced by a man on a two-year flight to the nearest planet.

The solution to both challenges may lie in making the pilot unconscious during most of the flight. This might be done by lowering the body's metabolism to the freezing point, if possible, either through drugs or by a cooling process. The minimum of food and liquid would be supplied automatically or intravenously.—*John Lyman, Ph.D.*, associate professor of engineering and psychology, University of California at Los Angeles.

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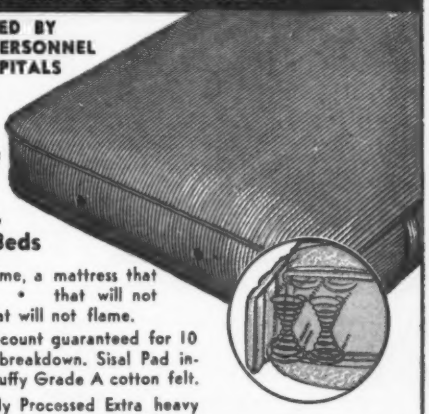

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Many Areas Need Improvement Mental Health Group Told

The National Association of Mental Health held its annual meeting in Atlantic City late in November. Here is TOPICS' report:

'Locked-Door' Policy Harms Mental Patient

Some General Hospitals Still Maintain Practice

Most psychiatric units in general hospitals still maintain the practice of locked doors. The "locked-door" policy has a deleterious effect on both patients and staff. It reflects ignorance of the behavior of psychiatric patients, and also the underlying fear and hostility of the community including its doctors, towards these patients.

There is evidence that the locked door increases resentment of the patient against the hospital and the staff. Many of the patient's symptoms are due to the restrictions imposed by hospital and staff rather than to his underlying illness.

An "open-door" policy turns the hospital into a helpful and rehabilitative institution rather than a restrictive and noxious one. The Bronx Municipal Hospital Center has established open wards. Furthermore, there is no segregation of men and women on any of the wards. The effect of an occasional walkout is almost negligible when compared to the positive effect on the psychiatric patients in an open ward.—*Milton Rosenbaum, M.D.*, chairman, department of psychiatry, Albert Einstein College of Medicine, New York City.

Public Prejudice Brings Fear to Mental Patients

Discharged People Lead Life of Subterfuge

Public prejudice is forcing recovered mental patients to lead a life of subterfuge and fear. Faced by the discriminatory attitude of many employers, discharged patients take jobs in an area in which they are not known, or accept jobs in a lower working bracket, or in most cases do not tell about their former illness and live with the anxiety of being discovered.

A realistic aim would be to give a former mental patient the same chance for employment as any other person, consistent with the individual's employability and with recognition of the need, in some cases, for a period of rehabilitative training.

Under the guidance of the San Francisco Mental Health Association, 14 San Francisco employers formed an employment planning committee in 1955. This group interviews a number of patients on their discharge from a mental hospital and helps them to find jobs. Each month, the committee endeavors to have up to 15 other employers at a meeting to interview a discharged patient. Employers usually leave the meeting enthusiastically interested in the particular patient.—*J. Gilmore Marquis*, executive director, San Francisco Mental Health Association.

Drop in Mental Patients Obscures Poor Treatment

Improvement Will Come Only Through Educated, Aroused Citizens

Optimism created by the recent drop in mental hospital rolls obscures poor conditions still existing in many mental hospitals.

A vast difference exists. In some hospitals, life for the patient is relatively pleasant. In many places, it is hell on earth. We cannot report a maximum use of our best knowledge in the service of the mentally ill.

Some states are still preventing an increase in their mental hospital population by the simple expedient of denying service to those who need it. Looking at the figures for admission, we realize the huge differences in treatment available. For example, in 1954, the admission rate per 100,000 population varied from a high of 179 in one state to a low of 45.5 in another.

A substantial improvement in all hospitals will come about only as a result of the demands of an educated and aroused citizenry.—*John H. Cummings, M.D.*, research director, Greater Kansas Mental Health Foundation, Kansas City, Mo.

VA Mental Hospital Uses Novel Technics

Some Patients Become Employees; Others Live in 'Foster Home Cottages'

Three novel rehabilitation technics are being used at the VA Hospital in Brockton, Mass.

A "member employee program" provides for the discharge of chronic mental patients whose condition is improved, and their retention as hospital employees at salaries from $657 to $821 a year. These employees receive, in addition to salary, food, quarters, laundry, medical and dental care, and access to hospital recrea-

tional activities. They are free to leave the hospital after working hours, and also are helped to find outside jobs.

Another program, designed for patients who have shown little or no improvement, combines occupational therapy with a money incentive. Patients work in a ceramics workshop and are paid from 50 cents to $2.50 a week. The program has been so successful that a number of patients have eventually been discharged.

A "foster home cottage program" takes care of patients who have arrived at a good level of recovery but whose employment potential is low because of age or physical disability. They are housed in a homelike cottage on the grounds, take care of their own needs, have a hobby shop, maintain vegetable and flower gardens, and are taught do-it-yourself jobs.—*Peter A. Peffer, M.D.*, manager, VA Hospital, Brockton, Mass.

Admissions Greater, Populations Less in Mental Hospitals

Lack of Funds Handicaps Treatment of Patients

Mental hospital rolls in 1956 showed a decline for the first time in 25 years and the downward trend is still continuing.

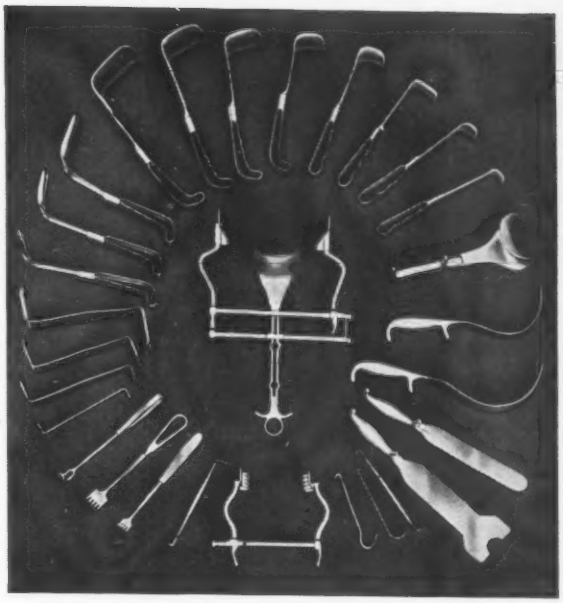
This decrease has occurred in the face of a continually increasing admission rate. Because of increased discharges and expanding mental hospital facilities throughout the country, it was possible for the hospitals to admit and to treat many more patients than in previous years. Yet, the over-all figures on resident patients fell by about 7 percent.

In 20 representative states, the number of resident patients in state and county mental hospitals dropped by 2,500 between June, 1956, and June, 1957. Projecting these figures to the entire United States, an estimated total reduction in population of about 5,000 in the nation's mental hospitals occurred during this 12-month period.

Many of the advances in the treatment of mental patients have been the result of an expanded program of concentrated, intense treatment for new patients. The majority of the other patients—those who have been there a year or longer—are getting little or no treatment at all.

This is not, in most cases, the fault of the hospital administrations. They can do just so much with $3.00 a day per patient. One doctor with 350 patients can see each of these patients only once every four or five months.—*F. Barry Ryan, Jr.*, New York, past president, National Association for Mental Health.

Attractive red binders which will hold 12 issues of HOSPITAL TOPICS are now available. These gold-lettered binders will be useful, attractive additions to office or library shelves. They can be purchased for $2.50 each. Write to HOSPITAL TOPICS, 30 W. Washington St., Chicago 2, Illinois.



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New Diagnostic Tests, Technics Described at Dermatology Meeting

The American Academy of Dermatology and Syphilology held its 16th annual meeting in Chicago in December. Nelson Paul Anderson, M.D., president, reported that the Academy's membership is rapidly approaching the 2,000 figure. Following are abstracts of selected papers.

Perspiration May Result In Tearing of Shoes

Sweating Draws Chrome Salts Out of Leather

When shoes become hard and tear at the seams, perspiration is often the cause.

In most cases chromium salts are used in tanning processes to make soft shoe leather. Perspiration draws the chromium out of the leather, leaving the shoe without its chemical protection. This is a cause of breakdown in shoes of people who are on their feet a lot, such as soldiers, nurses, and waitresses.

The "leaching" of the chrome often causes a rash on the feet. A nurse who suffered from an eruption of her feet for four years solved the problem by wearing cloth shoes. She was given a pair of chrome-tanned leather gloves at Christmas. After she wore them for a week, her hands broke out in a severe eruption.—*George E. Morris, M.D.*, visiting dermatologist, Long Island Hospital, Boston.

"Kwashiorkor" Spreads To the United States

African Disease Due To Protein Deficiency

"Kwashiorkor," a protein-deficiency disease first observed in equatorial Africa and since reported in other continents, has spread to the United States.

Four Negro girls ranging in age from 20 months to 11 years were treated at Charity Hospital, New Orleans. All four responded to high-protein therapy. Their case histories are expected to prove valuable in future treatment of the disease, which is usually fatal if not treated.

Symptoms vary, but generally they have included one or more of the following: vomiting, slimy diarrhea, swelling of abdomen, feet, arms, and legs, change in color of the ends of the hair (hair usually acquires a reddish tinge), mental apathy, peeling skin leaving raw areas, bleached skin in early stages turning darker later, underdeveloped body, and coldness of the extremities.—*V. M. Henington, M.D.*, assistant professor of dermatology, Louisiana State University, New Orleans.

Three 'P's' Form Keystone In Acne Vulgaris Therapy

Objective Is Gentle, Continuous Peeling of the Skin

Three "P's"—patience, perseverance and precipitated sulfur—are the keystones for treatment of the "pimply-faced youth."

Patience on the part of the patient is paramount in arresting acne vulgaris or bringing it under control, thereby preventing serious disfigurement.

Perseverance in carrying out all the modalities of treatment is necessary to prevent progression of the disease. Patients must be impressed with the idea that halfway measures are ineffective.

Precipitated sulfur (and its related keratolytics, salicylic acid and resorcin) is still the medication of choice. It has not been improved upon to any great extent in the last 100 years insofar as its action upon oily skin is concerned.

Successful treatment of acne vulgaris requires the removal of greasy plugs in the hair follicles and sebaceous ducts in the acne areas. Gentle, but continuous, peeling of the skin is the objective, unsightly as this appears to the teenager.—*David W. Folan, Jr., M.D.*, clinical instructor in dermatology, Tufts College Medical School, Boston.

Neurodermatitis Patient Has Compulsive Personality

Treatment of Stress Factors Is Required

The patient with neurodermatitis has a compulsive personality, is temperamental, and is inclined towards certain forms of allergy.

His or her environmental stress emanates from disturbing personal contacts, is prolonged, and often is related to periods of physiological adjustment.

In treating such a person successfully, a physician must deal with the personality and stress factors as well as administering the usual therapy.—*Donald H. Williams, M.D.*, clinical associate professor of medicine (dermatology), University of British Columbia, Vancouver.

Planing Process Helps Prevent Recurrence of Skin Cancers

Damage by Sunlight Found to Be Significant Factor in Growth

Removal of the skin into the second layer, through the process known as planing, is offering some hope to those persons subject to recurring skin cancers.

Once a patient's skin has been damaged by sunlight or other factors and cancers or precancerous lesions have developed, excision of the cancers does not prevent subsequent development of new lesions.

After the planing operation, the new skin, regenerated from deeper structures such as the sweat glands and hair roots, is not subject to malignant degeneration—since it has not been damaged by the sunlight.—*Ervin Epstein, M.D.*, associate professor of medicine (dermatology), Stanford University School of Medicine, San Francisco.

Obstruction of Sweat Glands By Deodorants Causes Trouble

Perspiration Is Discharged Into Surrounding Tissues

A deodorant used in the armpits should not totally obstruct the sweat glands.

In the last two years several cases of small, firm, elevated lesions bearing a superficial resemblance to the lesions of tuberculosis have been reported.

Most, but not all, cases have been caused by using a stick-type deodorant containing zirconium salt. However, most persons that have used the same type of deodorant have had no difficulty.

The lesions appear to be caused by the obstruction of glands and the discharge of the sweat into the surrounding tissues.—*Thomas S. Saunders, M.D.*, associate clinical professor of dermatology, University of Oregon, Portland.

New Chemical Tests Aid In Diagnosing Psoriasis

Skin Components Behave In an Abnormal Manner

Newly developed chemical tests are revealing to some extent, the manner in which psoriasis develops and thus are providing a diagnostic test.

We have found that the water-soluble components of the horny layer of the skin are severely disturbed in several scaling diseases, especially psoriasis. In the horny scales of such patients, at least three components behave in an abnormal way. These components are the soluble protein degradation products (amino acids) and certain sugars (pentoses).

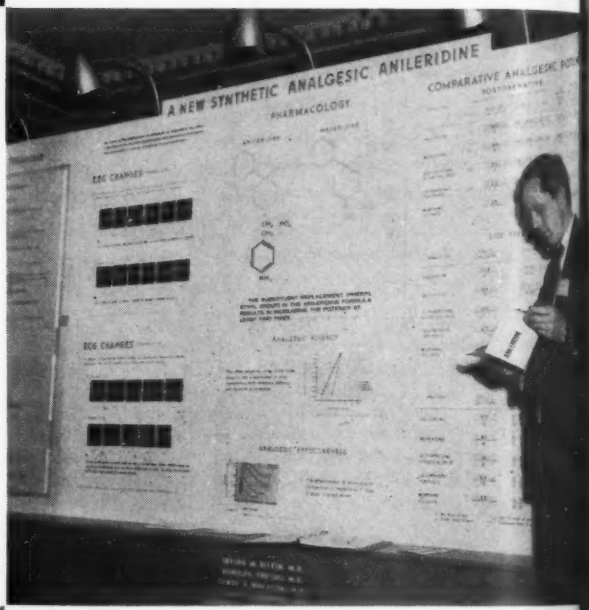
The findings were so constant that our research team was able to make the diagnosis of psoriasis from tiny bits of scales (1/100 of an ounce) without even seeing the patient.—*Peter Flesch, M.D.*, assistant professor of dermatology, *Elizabeth J. Esoda, M.D.*, and *Daphne Anderson Roe, M.D.*, department of dermatology, University of Pennsylvania School of Medicine, Philadelphia.

James R. Webster, M.D. (third from right), professor of dermatology, Northwestern University Medical School, Chicago, and newly elected president of the American Academy of Dermatology and Syphilology, receives gavel from 1957 vice-president, Arthur G. Schoch, M.D., clinical professor of dermatology and syphilology, Southwestern Medical School, University of Texas, Dallas, during Academy meeting in December. Looking on are other new officers (l. to r.): Robert R. Kierland, M.D., professor of dermatology, University of Minnesota Graduate School (Mayo Foundation), Rochester, secretary-treasurer; Everett R. Seale, M.D., professor of dermatology, Baylor University College of Medicine, Houston, Tex., vice-president; Samuel J. Zakon, M.D., professor of dermatology, Northwestern University Medical School, Chicago, re-elected historian; and Stanley E. Huff, M.D., assistant professor of dermatology, Northwestern University Medical School, Chicago, assistant secretary-treasurer.

NY Anesthesiologists Hold 11th PG Meet

The New York State Society of Anesthesiologists held its 11th annual postgraduate assembly in anesthesiology in New York City in mid-December. TOPICS was there to record these pictorial highlights.

At left: Arthur Lee Roy, M.D. (r.), director, department of anesthesia, Manhattan Eye, Ear and Throat Hospital, New York City, stopped to examine anesthesia equipment demonstrated at the North American Philips Co. booth by B. Thorpe, of the company's medical division.



At right: Scientific exhibit on a new synthetic analgesic, anileridine phosphate, was presented by I. M. Riffin, M.D., Rudolph Preisig, M.D., Henry H. Wheaton, M.D., Milton E. Landman, M.D., and Berthold Eric Schwartz, M.D., from St. Vincent's Hospital, Montclair, N. J. Gunther Schlag, M.D., anesthesiologist, New York Hospital, New York City, looks over findings of study. The doctors reported that anileridine had been used in more than 200 patients to potentiate nitrous oxide to produce satisfactory anesthesia for both major and minor surgery. It was also used to relieve postoperative pain in 278 patients, and was found to be as potent as morphine, with a minimal incidence of side reaction.

At left: D. H. French, M.D., resident, St. Francis Hospital, Roslyn, N. Y., stops at historical display on "New York State Story of Anesthesia," showing early state leaders in anesthesiology and some of the first equipment used, such as the Squibb ether cans in center of picture. Exhibit was the work of Albert M. Betcher, M.D., Benjamin J. Ciliberti, M.D., Paul M. Wood, M.D., and Lewis H. Wright, M.D., from the Wood Library-Museum of Anesthesiology, New York State Society of Anesthesiologists.

Above: Peter A. Cheng, M.D. (l.), Harbor General Hospital, Torrance, Calif., answers questions of interested listeners who stopped at his exhibit on "Anatomy and Technic of Epidural Anesthesia."

At right: Exhibit on "Teaching Methods in Anesthesia" was presented by Frank E. Fierro, M.D., Dante Bizzarri, M.D., Joseph G. Giuffrida, M.D., Albert Schmookler, M.D., Howard Berger, M.D., and Frank Latteri, M.D., from the New York Medical College-Metropolitan Medical Center and Elmhurst General Hospital, New York City.

Below, left: John Hinse of HOSPITAL TOPICS staff watches demonstration of "Monitorscope" by Joseph F. Dobosy, Essential Electronics Corp.

Below: Exhibit on open cardiac surgery was presented by David Mendelsohn, Jr., M.D., Thomas N. MacKrell, M.D., E. B. Kay, M.D., J. S. MacKrell, M.D., and Margaret MacLachlan, M.D., from St. Vincent Charity Hospital, Cleveland.

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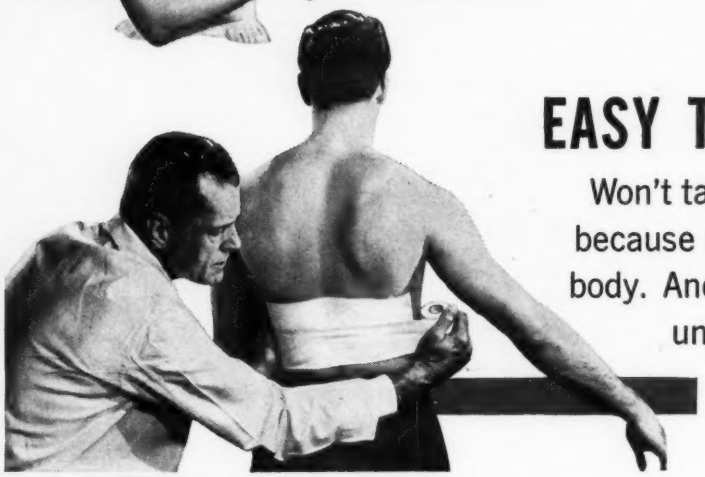

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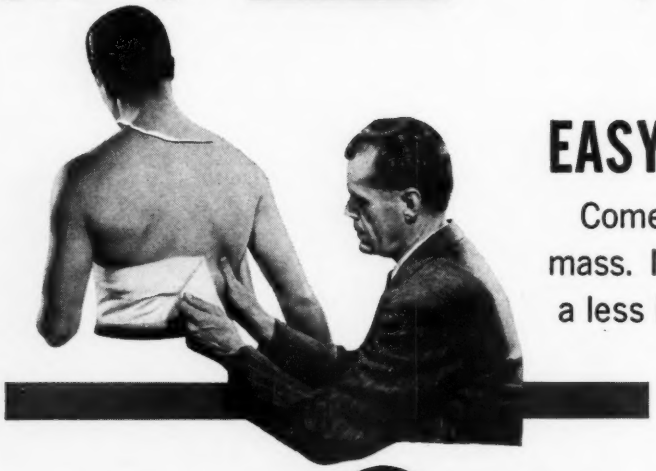

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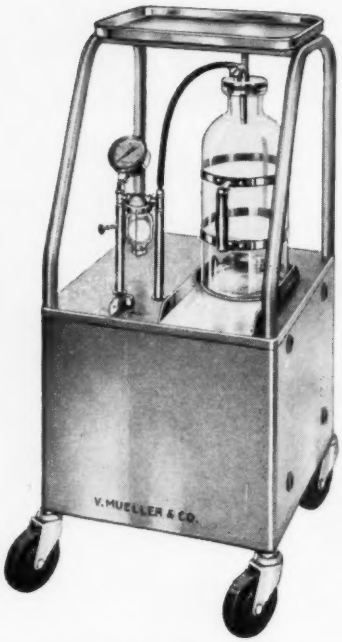

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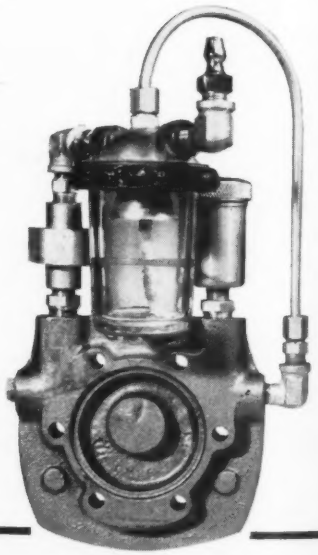

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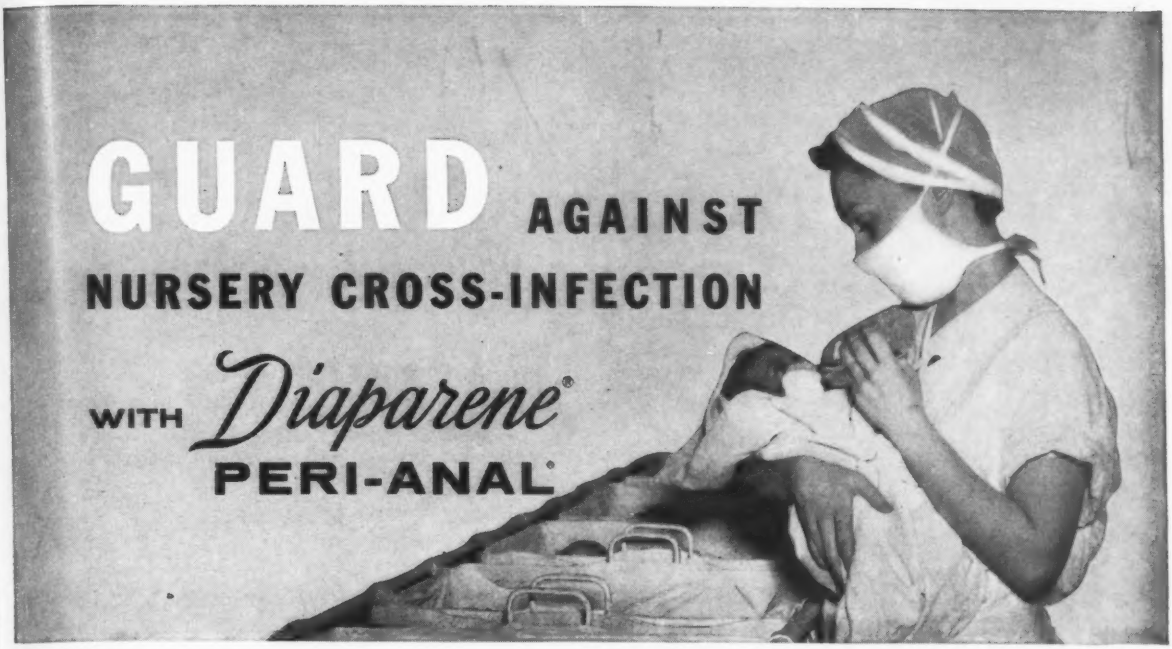

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[1] Grossman, Leo, St. Francis Hospital, Miami Beach, Fla., "A New Specific Treatment for Perianal Dermatitis", Arch. Ped., 71:173-79, June, 1955

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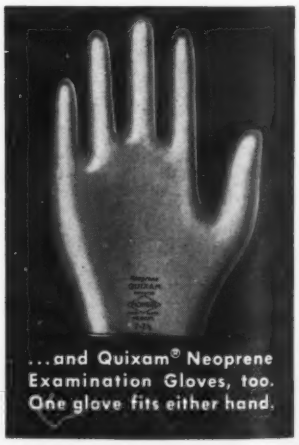

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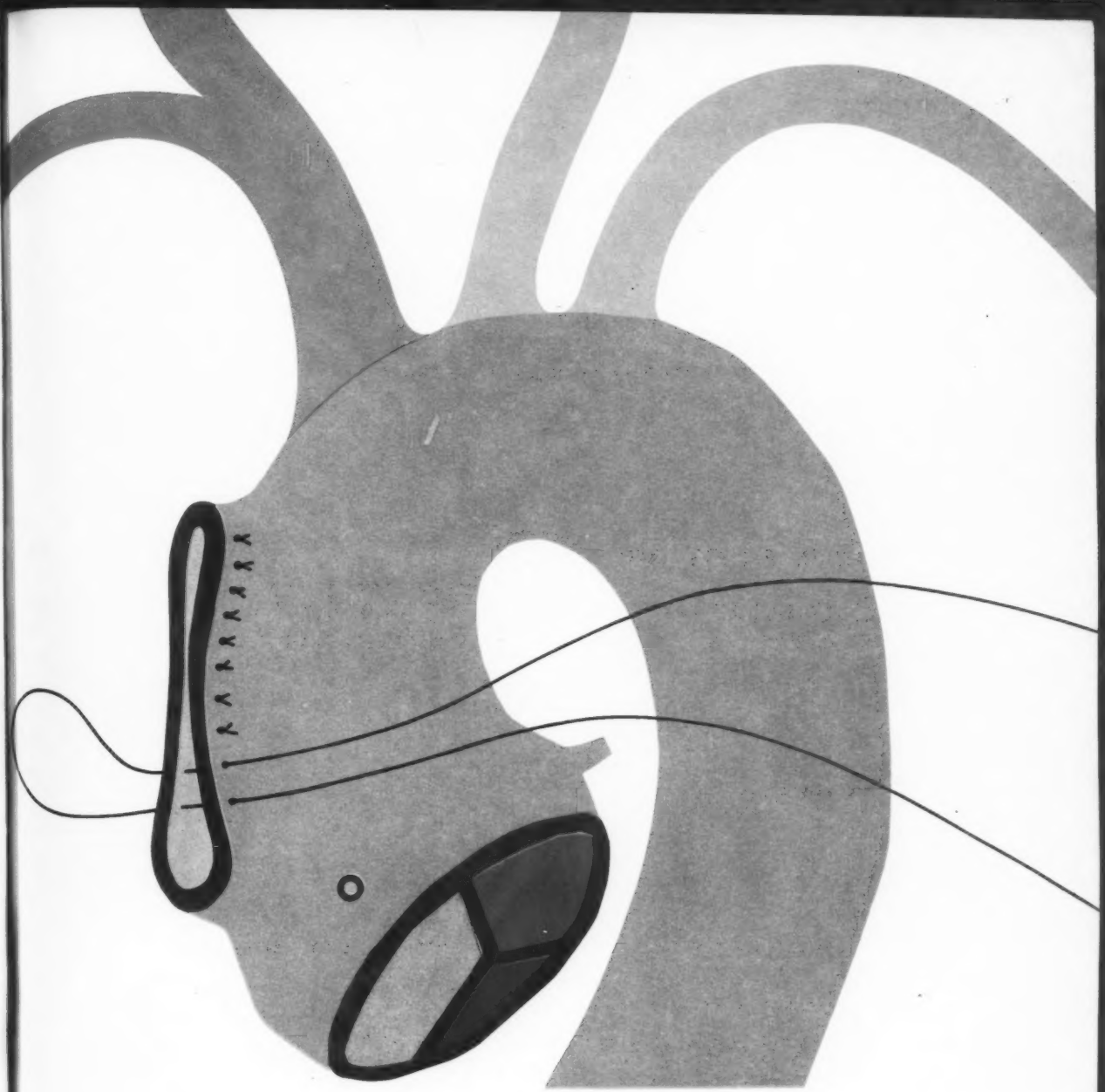

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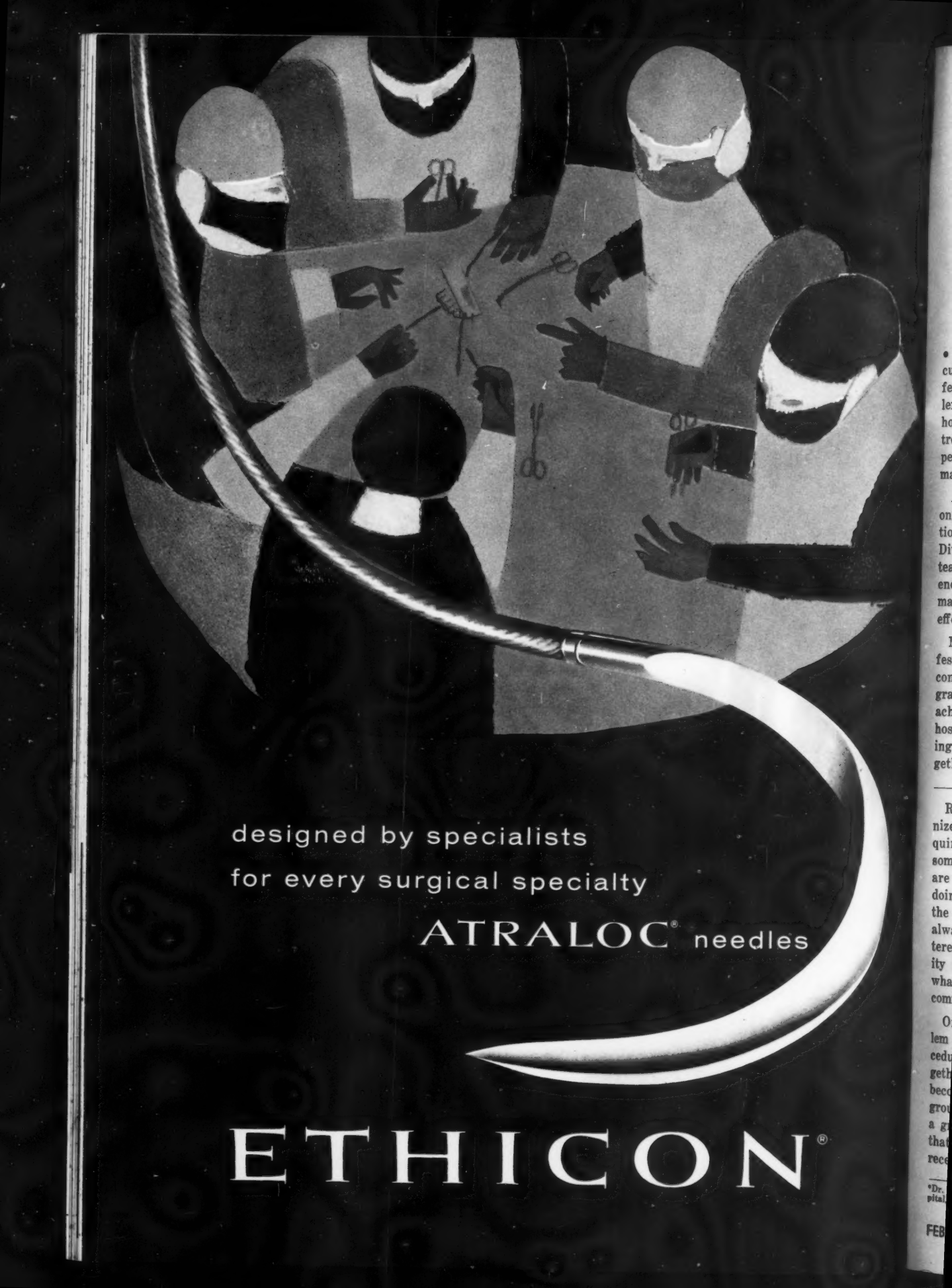
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Improving Patient Care Through Group Procedures

By Hedley G. Dimock, M.A., Ed.D.*

• Today's growing hospital faces considerable difficulty as it tries to coordinate the efforts of its professional staff. It is the old problem of letting the left hand know what the right hand is doing. In hospitals in which 10 to 20 different persons are treating one patient in a day it is difficult for these persons to see the total picture—there are just too many "right hands."

At one time a doctor and a few nurses were the only staff treating a patient. Increased specialization has added many new professions to the picture. Division of tasks within professions has produced teams of doctors and teams of nurses. It is an enormous task to co-ordinate the treatments of the many different staff members and integrate their efforts to improve the well-being of the patient.

Many hospitals like to think of the group of professionals treating a patient as a team. The team concept is especially popular in rehabilitation programs. Teamwork means subordinating individual achievement for the efficiency of the whole. For the hospital team this implies working closely—sharing information, planning, and making decisions together.

A PROBLEM OF COMMUNICATION

Regardless of whether the team concept is recognized, the comprehensive treatment of a patient requires that each staff member treating him has some knowledge of what the other staff members are doing, the theoretical basis on which they are doing it, and what their immediate plans are for the patient. This requirement is implied, but not always recognized, in the concept of patient-centered care. The group psychologist sees the inability of the "team" to share information and know what the other fellow is doing as a problem of communication.

One of the most effective approaches to the problem of poor communication is through group procedures. When people meet together and work together they get to know one another, and tend to become more interested in one another's work. A group that utilizes effective procedures accomplishes a great deal more in less time. The members feel that the meetings are especially valuable, and they receive more personal satisfaction from them.

*Dr. Dimock is director of group guidance, Montreal Children's Hospital, Montreal, Que., Canada.

The personal security gained from this sense of accomplishment reduces the need to compete and makes it possible for "individual achievement to be subordinated for the efficiency of the whole." Teamwork flourishes in a group atmosphere.

The ward conference is a channel of communication that is used to supplement the two most usual communications—ward rounds and patient charts. The conference provides an opportunity for group discussion and decision. This forms a basis for co-operative planning and co-ordinated patient treatments. The purpose of the conference is different from that of the rounds and the charts. It is used in addition to these methods when its unique contribution, group discussion, is necessary or when it makes communication more efficient.

MORE EFFECTIVE GROUP PROCEDURES

Meetings can be very much a waste of time. Discussions can wander in circles without decisions being reached; one or two persons may monopolize the conversation, and disagreements can cause ill feeling among members. If meeting time is to be used efficiently, its operation and procedures must be planned for in a systematic fashion. Group dynamics, the study of how groups work, brings a systematic approach to such group problems through its experimental findings and its research in business, industry, and the professions. A review of some of these findings and their implications for group meetings helps to identify effective procedures.

Meetings should be scheduled at a time when people are fresh and relatively free from other pressures. The meeting place should be furnished comfortably, yet it should suggest an important meeting. It should be free from all distractions. The length of the meeting should be determined ahead of time on the basis of the needs of the group. Research suggests that most groups need an hour to get the maximum benefits from their meeting. It is usually best if meetings are scheduled regularly and not too close together.

All staff members, or their representatives, involved in treating the patients under discussion are the ones to come to the meeting. If the meetings are administratively oriented, then everyone affected by decisions likely to be made should be present. Small groups, six to fifteen, are usually most effective.

(Continued on next page)

An informal, friendly atmosphere at a conference is most conducive to healthy discussion. Ash trays and comfortable chairs that can be moved into a circle help to create this atmosphere. A warm, supportive emotional climate is important too. Members should feel free to express their ideas and be secure enough not to feel hurt if their suggestions are rejected. Sometimes a bit of light chatter as the meeting gets started helps to accomplish this.

Groups that have a leader accomplish more than groups without one. The leader or chairman may be permanent, but often it is better to rotate this job among members. The tasks of the chairman are to open and close the meeting; keep the discussion focused on the problem; encourage everyone to participate, yet keep any one person from dominating, and assist the group in reaching decisions. Probably the most effective procedure is to have the chairman lead the discussion by pointing out the topics or patients to be discussed and then keep the discussion on the track by clarifying and summarizing ideas. If he calls on the people or if they address all their remarks to him, the interaction will be severely limited.

It may be helpful for the group to follow a regular discussion pattern such as sharing information and diagnosing, suggesting solutions, and making decisions.

A recorder is also needed to keep a written summary of the main points expressed. This person is not a secretary but a member who keeps track of where the group is in its discussion and what decisions have already been made. The task of recording can also be rotated among the members. If the members take responsibility for helping both chairman and recorder, they are more likely to feel that the group is theirs and take an active part in it.

A summary should be made by the recorder and the group at the end of the meeting (this is a good way to close the meeting). A duplicated summary sent around to all members helps make the discussion and decisions more concrete. A copy put in the chart of each patient discussed serves as a permanent record. A day or two before the next meeting a suggested agenda can be sent out to start warming up the members for the next discussion.

A regular evaluation of the group's procedures, directed toward self-improvement, is an important aspect of operation. Procedures can be evaluated through a review of objectives and accomplishments, an analysis of the effect of different procedures on the group, or a questionnaire filled in by members at the close of each meeting, telling their reaction to the session, or by an experienced group process observer.

A CASE EXAMPLE

Most of the patients hospitalized through the orthopedic service of a large metropolitan general hospital stayed over two weeks or were re-admitted several times. Seven different departments worked regularly on the orthopedic ward (surgery, nursing, nursing education, physiotherapy, recreation, social service, and occupational therapy), and three others worked there occasionally (psychology, speech therapy, and psychiatry). Most of the staff members found that they had little or no idea of what the others were planning for or doing with the patients. They were anxious, too, to improve the care given by unifying their approach to each patient and working toward a goal based on the best thinking of all concerned.

Ward rounds were a rather hurried affair. If everyone came, the group was too large to fit into the small ward area. It was decided to hold a one-hour weekly conference to discuss the patients admitted through the service. Several of the staff most anxious to have the meetings got together and set the time and place. Unfortunately, the time chosen was one during a regular operating period, and for the first eight months of meetings the doctors were unable to attend. The conferences were held in a small room in the psychiatry department around a large rectangular table.

At one of the early meetings the question of the need for a chairman came up. It was decided that the group did not need one. The leader's role was, however, assumed by a psychiatrist. He became the focus of all discussion as he called on the different people to talk and then replied to their questions or commented on their remarks. No records were kept of the meetings. Relatively few patients were discussed, and it was unusual to talk about more than one patient during the hour period.

After meeting for eight months the group decided to hold a demonstration conference for the administrative staff and department heads. This demonstration was very valuable to the group, as it gave them recognition and status in the eyes of their colleagues. It also gave the administration a better idea of what the group was trying to accomplish.

At this meeting, an attempt was made to evaluate the conferences by summarizing the work of the group and the values perceived by its members. It was observed that relatively few patients had been discussed, yet there were two or three patients who made outstanding examples of what the conference could accomplish. The completeness and effectiveness of the planning in these cases could not have been duplicated in any other way.

The members, especially the nurses, felt the meetings had been helpful and said they thought they now had some understanding of what the other departments were trying to do. Several outsiders pointed out the improvement in morale around the ward and the increased interest in the patients as people.

At this time an outsider was brought in to help the group improve its procedures and become more effective. It was his task to watch how the group

worked and interpret what he saw. He usually reported his observations near the end of the meeting. This time became partly an evaluation period to assess how well the group had done. As the members left the meeting they often filled out questionnaires that asked how they liked the meeting and what they would do to improve it. A summary of their answers was reported at the next meeting.

Several of the other staff members involved in the conference changed now, too. The group believed that a special effort should be made to find a time convenient to all. The first thing Monday morning was chosen, and the freshness everyone brought from the weekend was a boost to enthusiasm in the conference.

The psychiatrist who had been the leader was one of those to leave, and the question of a chairman came up again. It was agreed to have a rotating chairman with each member taking turns for a month at a time.

The review of cases at the demonstration conference brought out the handicap in not having any records of the meetings. The group decided to have a rotating recorder and to duplicate the record, sending a copy to each member. Between meetings the chairman, recorder, and orthopedic resident got together with the head nurse and drew up a tentative agenda which was included in the recorder's report, to give everyone a chance to see who was going to be discussed. The patient's records could then be brought up to date and the latest information used at the conference. Those who did not know the patient very well were likely to get to know him much better before the conference.

The presence of the doctors had an immediate effect on the decision-making progress of the group. All decisions regarding any patient could now be made at the conference. It was no longer necessary to take the extra step of consulting with the doctors involved. This was a good illustration for the group of the need to have everyone involved with the patients present at the meeting.

Along with these several changes in the group came an increase in its size. It was now usual for over 20 persons to attend. A few of these, however, were not participants, as the hospital-wide recognition of the group's work brought frequent observers from the other services. The meetings moved to larger quarters in a classroom. A circle of chairs could not be made. Sitting in rows proved unsatisfactory. The academic atmosphere of the room did not contribute to the success of the meetings. A move was made to a large lounge where everyone could sit in comfortable chairs in a large circle. Serving coffee as the group arrived appeared to help get the meetings started on a friendly, relaxed note.

As another year and then two passed, the improvement in procedures and the experience of the members made it possible for over twice as many patients to be discussed, in less time. The conference broadened its interests to include admission procedures for patients and the management of the orthopedic ward. Two or three patients were usually discussed in the first 40 minutes, and the remaining 20 were devoted to administrative problems.

To be sure, it was not all easy going for the conference. Progress came more in spurts than in a steady fashion. At times, too, procedures regressed. For example, the group became very enthusiastic about having written records, and went to some trouble to get a secretary to take notes. The secretary was not able to sort out the important parts of the discussion, and the caliber of the records decreased considerably.

SUMMARY

Many of the difficulties hospitals face in co-ordinating the efforts of their staff can be worked out through effective conferences. Meetings are usually a more successful method of sharing information and making cooperative decisions than chart records or ward rounds. The organized structure they provide is more consistent than informal chats in the halls, over lunch, or on the phone. Patient-centered care based on teamwork among the different services requires group discussion for its fulfillment.

Meetings, to be of full value, necessitate effective group procedures. Group psychologists have studied the dynamics of group discussion and have evaluated many different procedures. Many of their suggestions were used by this group. They include a rotating chairman, a recorder and regular records, planned flexible agendas, a place of meeting conducive to interaction, evaluation of meetings, and hospital-wide recognition for the group. The change to more effective procedures improved and increased the group's productivity.

Many side benefits to patient planning conferences were found. Understanding and rapport among staff was increased. The group became interested in improving the total hospital service to patients. The staff members were happier and took greater interest in their work. They no longer felt alone in their work but an integral part of a co-operatively functioning team devoted to serving the sick people of the community.

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'Word Magic' Improves Communications

The right words work wonders to help supervisors get things done

By Jack Bedford*

• To get things done in a hospital there must be some means of communication. The vehicle to carry the message may be a notice on the bulletin board, an announcement over the address system, a written report, or a personal conversation.

Regardless of how the message is delivered, the employee communication must be completed with words. How successful we are in getting people to do the things we want will depend on our choice of words—word magic.

Here are some words and phrases that hospital supervisors have found most helpful in building better communications—word magic that gets things done:

1. If or when:

Positive thoughts are expressed in positive words—and positive thoughts get things done.

Consider, for instance, these two requests made by a supervisor:

"If you get time, do this . . . "

"When you get time, do this . . . "

Except for one word these two requests are exactly the same. But the substitution of the one word "when" changes the request from a negative to a positive one.

If is a weak, wavering, vacillating word. It makes it easy for the employee to procrastinate. Things are put off rather than completed.

When, on the other hand, is a strong, stimulating positive word. It gets things done quickly and with a minimum of friction.

Yet, because the request is prefaced by "when," it is not a command that will arouse resentment of the hospital employee. It gives the employee a choice of *when* he will perform the task, not *if* he will do it or not.

To apply this word magic in employee relations, one needs to do two things:

1. Think positive thoughts about getting the work done.

2. Preface a request with "when" instead of "if."

Another way supervisors use the word magic of "when" to get things done is by asking a question. The employee is given a choice in the question which starts with the word magic "when."

For instance, if the supervisor wants an employee to do something as soon as possible, she would ask,

"When can you do this—today or tomorrow?"

This assumes the employee will perform the task. It has the positive approach. And it gives the employee a feeling of importance because he can make a choice of doing the work today or tomorrow.

As this question is phrased, there is a good chance that the assigned task will be done tomorrow. But, if there is an urgency about getting it done today, the supervisor could change the order of the choice in the question—for instance,

"When can you do this—tomorrow or today?"

She thus puts emphasis on the time she wants the work done by placing it as the second choice. It is the last thing the employee hears, and chances are good that he will answer, "Today."

Another thought to keep in mind about using this word magic in question form is that the employee should be given a specific choice. Asking him when he can do the work leaves the answer wide open. But when the choice is nailed down to either "today" or "tomorrow," he will answer with one of these choices.

In addition to "when," other choice words with which to start effective prefacing remarks are "which, what, where, and how." Any of these words will key the question to giving the employee a choice.

2. For example:

One of the most important parts of a hospital supervisor's management function is training employees. On-the-job training takes on added emphasis for the employees when word magic is employed in the instructions communicated to them.

For example is basic word magic in training. We use it all the time. We all learn through illustrations of the right and wrong way to do things. And, since we are so conscious of this learning method, we are alert for examples that will help us understand better.

When instruction is prefaced with the words, "for example," the employee is snapped to attention for the illustration. He is eager to learn how it is done, and listens to the example.

In using this word magic, a few rules should be considered. First, the example used should be given to prove the point. The point is made and then followed up with the word magic, "For example."

Second, the example should be specific. It will be

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more interesting and more memorable to the employee when specific terms are used.

Third, the example should be relevant to the point. In training this is usually automatic, but it may be necessary to change a few examples to make them apply to the problem under discussion.

Fourth, the "for example" word magic is more effective if some variety is added—such as "to illustrate," "as a case in point," and "for instance."

Fifth, one should be alert to examples that can be used to point up instructions. Collecting examples of both the right and the wrong way of doing something will make instruction more interesting to the employees. *(Continued on page 48)*

Excess Pounds Target of 'Operation Bulge'

By Natalie I. Giglio*

"Operation Bulge" is the appropriate title of a group therapy project aimed at removing excess pounds from employees of Grace-New Haven Community Hospital.

Physicians, through the Personnel Health Clinic, frequently prescribe low caloric diets for employees. The group therapy program is offered to such employees who wish to lose weight.

Enrollment in the project is voluntary. The class consists of 12 women or men. A minimum fee is charged to cover incidental expenses and to provide incentive to attend the classes.

Purpose of the class is to teach members how to improve their food habits through good nutrition on a restricted caloric diet, and thus eventually bring about weight loss.

There are six one-hour classes in the program, but they may be extended, depending on the interest of the group. The class meets weekly during the first month. The time and day are planned by the group so that the class will not interfere with work schedules. The second month, the group meets bi-weekly.

At the first meeting, each employee is weighed, and hip, bust, and waist measurements are taken. The dietitian distributes a 1200-calorie meal plan, designed to offer well-balanced meals and eliminate foods highly concentrated in calories. The diet includes daily the essentials of good nutrition: milk, eggs, meat, or its substitute, butter or fortified margarine, fruit, bread or its substitute, and leafy green and yellow vegetables. The dietitian who acts as group leader discusses the "exchange lists" for these food groups.

An appointment is made with each individual before the next class meeting. During this interview the dietitian reviews the exchange lists and adjusts the diet to meet the individual's needs.

During the first week, using the meal plan as a guide, the employees keep a daily food record of what they eat. At the second session, the dietitian reviews the exchange lists, using the food records. Records of three different employees are written on the blackboard. The group analyzes and criticizes the various meal plans. Food models are used to clarify portion size during this discussion.

The employees are weighed at the beginning of each week. A bar graph showing weight loss or gain is kept up to date.

Visual aids are used throughout the session. They include food models, cartoons, newspaper articles, and the basic seven food chart.

Group enthusiasm increases as the classes progress. Members are co-operative and ask many questions, such as: "Is water fattening?" "Can I eat all the fruit I want?" "Is it necessary to drink milk?" "Why can't I skip breakfast?" Often one group member can answer the questions asked by another.

The third and fourth periods are devoted to a discussion of the nutrients, protein, fat, carbohydrate, vitamins, and minerals, found in the basic seven groups. Each of the seven groups is explained as to food sources and daily recommended allowances. The class reacts most favorably to these discussions. Recipes for mixed dishes which may be prepared using the allowed substitutions are discussed. The kinds of snacks which may be eaten between meals are also explained.

Restaurant menus are brought to the fifth class session. Using the 1200-calorie guide, the group selects entrees, vegetables, salads, and desserts which they may have and still follow the diet.

At the last session the resident in medicine gives an informal discussion of obesity. He reaffirms many of the points brought up in previous classes. Such questions as whether it is advisable to take appetite depressant drugs and why weight loss may vary are discussed.

Of 12 employees in one group, eight completed the program. A total of 72 pounds was lost by this group during the six-week period. Members were pleased with these results and the favorable change in body measurements. The dietitian checks the weight of each individual weekly, and when each one has reached his desired weight a maintenance diet is then given.

*Clinic Dietitian on the staff of Grace-New Haven Community Hospital, New Haven, Conn. She conducts classes in 'Operation Bulge' program.

Housekeeping: Organization and Personnel Management

By Harry A. Stroh and John Gondolfo*

This is the second in a series of three articles dealing with the principles and practices of good housekeeping in hospitals. The North Shore Hospital, Manhasset, L. I., N. Y., has provided illustrations of actual applications of these principles and practices from its housekeeping program.

The complete housekeeping manual of North Shore Hospital is being published by HOSPITAL TOPICS and will soon be available.—THE EDITORS.

● Organization structure is, by far, the most popular topic in every discussion of the housekeeping function. Deliberations usually lead almost immediately to organization, and from then on it receives virtually exclusive attention. And, in fact, it is so important that it deserves this attention.

As is the case with every other function, there are a number of guiding principles which should be applied in developing an organization structure for housekeeping.

1. Centralized Management

Housekeeping as a whole is a separate, distinct, and clearly defined operation in a hospital. Hence, it should be set up as a single operation under a centralized top management which supervises all of the specialized talents that the job requires. This is as true in a large hospital in which accidents of location separate different buildings of the hospital, as it is in a small hospital contained in a single building.

2. Functional Structure

In every hospital, a basically fixed number of functions make up the housekeeping operation. Each of these *must* be recognized in the organization structure, and, where practical, each should form an element of that structure. The functions common to most hospitals are these:

A. Maintenance cleaning of patient rooms—preparing patient rooms for use daily and keeping them in constant orderliness.

B. Maintenance cleaning of facilities adjacent to patient rooms—preparing these facilities for use daily and keeping them in constant orderliness.

C. General cleaning of all facilities—checkout cleaning of patient rooms and scheduled general cleaning of all other facilities.

D. Maintenance and general cleaning of corridor floors—maintaining floors within facilities is, for the most part, included in the cleaning of the facilities. Corridor floors, accounting for approximately 20 percent of all floor space, require individual attention.

E. Maintenance cleaning of public areas and business and administrative facilities—preparing these facilities for use daily and keeping them in constant orderliness.

F. Linen room operation—controlling linen inventories and linen servicing.

G. Maintenance and general cleaning of surgical, recovery room, and obstetrical facilities—these facilities demand the highest degree of sanitation and form a specialized housekeeping function.

H. Maintenance and general cleaning of kitchen—the kitchen is another specialized facility and is cleaned by employees of the dietary department.

3. Group Work

The third principle in developing a housekeeping organization structure is that each of these separate functions should form the base of work for a group of housekeeping employees. However, it is not always practical to adhere strictly to these functional lines in developing a housekeeping organization. The layout of facilities and the work load for each function, in specific buildings, may make it necessary to split some functions between groups and to combine other functions within a group, in order to arrive at logical work loads.

At North Shore Hospital, these principles of organization structure are applied with the practical modifications required for that hospital. Figure 1 depicts the hospital's organization structure for housekeeping. The following six groups make up the organization:

Hospital maid group—responsible for maintenance cleaning of patient rooms and resident doctors' rooms.

Serviceman group—responsible for maintenance cleaning of all facilities adjacent to patient rooms. This group is also responsible for general cleaning of corridors in patient room areas.

(Continued on page 40)

*Mr. Stroh is one of the founders of Housekeeping, Inc., New York City, a management consulting firm which specializes in housekeeping operations. He is experienced in every aspect of housekeeping, in hospitals, colleges and universities, museums, department stores, office buildings, railroad stations, airports, and other commercial and industrial buildings. Mr. Gondolfo is a senior methods analyst in the administration and methods planning division, General Foods Corp.

Figure 1

NORTH SHORE HOSPITAL

HOUSEKEEPING SERVICES DEPARTMENT

HOSPITAL MAID GROUP	SERVICEMAN GROUP	DAY PORTER GROUP	NIGHT PORTER GROUP	SPECIAL CLEANING GROUP	LINEN ROOM GROUP
1 Hospital Housekeeper 4 Hospital Maids - Training 5 Hospital Maids	1 Leadman-Serviceman 1 Serviceman - 4th & 3rd Floor 1 Serviceman - 2nd & 1st Floor	1 Leadman - Porter 1 Porter - Lobby & Main Floor 1 Porter - Basement & Incinerator 1 Porter - Utility	1 Leadman - Porter 1 Porter - Main Floor 1 Porter - Basement & Incinerator 1 Porter - Utility	1 Leadman - Special Cleaning 1 Porter - Checkout & Walls 1 Porter - Corridor Floors 1 Porter - Utility	1 Leadman - Linen Room 2 Attendant - Linen Room 1 Seamstress (Part-time)
- Maintenance Cleaning of Patient Rooms and Resident Doctors' Rooms.	- Maintenance Cleaning of all areas adjacent to Patient Rooms including Patient Service Areas, Public Areas, Office and Building Service Areas. - General Cleaning of Corridors in Patient Room Areas.	- Maintenance Cleaning of Public Areas on 1st Floor. - Incinerator Operation.	- Maintenance Cleaning of Business & Administrative Areas. - Maintenance Cleaning of Patient Service Areas in Basement. - Night Incinerator Operation.	- General Cleaning of Patient Rooms. - Cycle Cleaning - Complete Corridor Floor Cleaning.	- Complete Linen Services

(Continued from page 38)

Day porter group—responsible for maintenance cleaning of public areas, and for day incinerator operation.

Night porter group—responsible for maintenance cleaning of business and administrative facilities, and also for maintenance cleaning of employee facilities, and night incinerator operation.

Special cleaning group—responsible for checkout cleaning of patient rooms and general cleaning of all other facilities. This group is also responsible for complete corridor floor cleaning.

Linen room group—responsible for linen inventories and linen servicing.

At North Shore Hospital, the surgical, recovery room, obstetrical, and kitchen facilities are the responsibility of personnel in the respective departments.

Group Work Descriptions

An organization chart is an effective tool for establishing an organization structure and for assuring that responsibility is fixed for each housekeeping function. After the structure is defined, it is necessary to move from generalities to specific planning for getting the work done. To support the organization chart, the work of each group must be identified and outlined in a work description. Group work descriptions define the name and size of the group, its major duties, and its general responsibilities.

Figure 2 defines the job of the serviceman group at the North Shore Hospital. In format and contents, this outline is typical of the work descriptions developed for each group in the hospital's housekeeping organization.

Size of Work Groups

In an effective housekeeping organization, each work group should be developed as a self-sufficient working team with full responsibility for accomplishing a specific portion of the housekeeping job. To accomplish this objective with housekeeping personnel, it is necessary to restrict the size of each group to from two to five employees. A group of this size can be equipped with its own working supervisor and relief personnel so that, at all times, it may retain sole responsibility for doing the work assigned to it.

At North Shore Hospital, the group sizes fall within the optimum limits (see Figure 1, page 39). The serviceman group has three employees; the day porter group, night porter group, special cleaning group, and linen room group each have four employees. The hospital maid group, with 10 employees, actually is built on the same principle of group size—that is, it includes four working teams of two employees, one team for each floor.

Working Supervisors

The position of executive housekeeper is an integral part of a centralized housekeeping organization. Regardless of the size of the hospital a person in this position is needed to plan, activate and control the housekeeping operation. In larger hospitals, it may be necessary to provide an assistant housekeeper to share the top supervisory burden and an office clerk to maintain schedules and records.

(Continued on page 55)

Figure 2

North Shore Hospital
Group Work Description

Group—Servicemen

Complement

1 leadman—serviceman
1 serviceman—4th and 3rd floors
1 serviceman—2nd and 1st floors
3 total

Major Duties

1. Prepare and keep in constant orderliness *patient service areas* on all floors including:
   - nursing services areas
   - central sterile supply
   - B'rith Room
2. Prepare and keep in constant orderliness the *emergency area*
3. Prepare and keep in constant orderliness all *visitors' day rooms*
4. Prepare and keep in constant orderliness all *medical division offices* and the *nurses' office and lounge.*
5. Keep in constant orderliness *corridors and elevator lobbies* adjacent to patient rooms.
6. Frequent daily periodic servicing of *pediatrics nursing unit* to keep in constant orderliness.
7. Daily wet sterile mopping of floors in *nurseries* (3rd floor).
8. Daily general cleaning and daily periodic servicing of *public toilets.*
9. Prepare and keep in constant orderliness *stair wells.*
10. General cycle cleaning of corridors in patient care areas including high dusting, wall washing, light fixtures and woodwork.
11. Wet mopping of spillage in all patient rooms.
12. Maintenance and general cleaning of all venetian blinds.
13. Incidental and emergency porter services.

General

1. The leadman—serviceman provides supervisory relief for the leadman—porter.
2. The group provides its own reliefs for day-off, vacation, holiday, compensatory time-off and sick-leave periods.
3. Group work hours are 7:30 a.m. to 3:30 p.m.

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Linen Maintenance:

Necessary Evil or Good Business?

By Jackson E. Scott*

• Linen maintenance is not only good business but mandatory if institutional laundry management is to be continued as a profession.

I say, without any reservations whatsoever, that in most hospitals and other institutions there is a lethargy with regard to linen maintenance or, as it is often called, "linen conservation."

An institution must invest large amounts of its capital to maintain a costly laundry as well as a sewing and repair room. To management these investments may appear, at times, as necessary evils which might be dispensed with by the commercial laundry.

It is up to laundry managers to realistically and conclusively prove the financial advantages of the hospital laundry. This can be accomplished only by means of an intelligent and effective linen maintenance program.

To substantiate their ability to economically process the hospital linens, most laundry managers come up with their cost per pound to process all linens. There is no question that such costs are sincerely and honestly figured. However, such costs, often based on fictitious figures, can be successfully debated to the point where doubt remains in the mind of those who have a voice in policy of institutions.

What further testimony can the laundry manager present to justify an institutional laundry? Can he say how many launderings he is getting out of sheets, spreads, garments, and wrappers? Does he know the number of discards as well as the items discarded? Do his records show how many items were repaired in the sewing room and the time consumed for such repairs?

What about wash-overs—is a record kept of the number and item? What is the number of hand towels, bath towels, pillow cases, and such produced a month? The answer to these and many more questions must be known before the manager can justify a laundry in an institution and in turn sustain a linen maintenance or linen conservation program.

Rather than institute a sustained linen maintenance program individually, I suggest that laundry managers work together through their efficient and well organized association, namely, the National Association of Institutional Laundry Managers. Through this office can be disseminated the tabulated information received from individual members. Perhaps the program I am suggesting will necessitate additional paper work on the part of laundry managers and their employees. However, such records are a "must," inasmuch as the primary purpose of maintaining any type of record is to provide a diagnostic tool to find areas in which improvements can be made.

I recommend that the following records be maintained on a daily basis so that the efficiency or, perhaps, lack of efficiency, of linen maintenance may be determined:

1. Number of pieces of each item laundered.

2. Number of rejects of each item laundered (for wash-over).

3. Number of pieces of each item placed into service.

4. Number of pieces of each item discarded.

With this readily available information the linen replacement factor can be determined. This is determined by taking the number of new pieces, placed into service, multiplying it by 100 and dividing by the number of pieces laundered, less the number of rejects.

For example, let us take a hospital laundry that processes 9,000 bed sheets in a month, during which period there were 200 wash-overs or rejects. For this same month the hospital placed into service 110 new bed sheets. When the formula for obtaining the linen replacement factor is applied, the following is obtained: Linen replacement factor =

$$\frac{110}{9000} \times \frac{100}{200} = \frac{11000}{8800} = 1.25$$

The linen replacement factor simply tells the number of new items placed into service for 100 washings. By the example just given we learned that an average of 1¼ sheets was placed into service for every 100 launderings. With this factual information at his fingertips, the institutional laundry manager has specific proven truths to substantiate and enhance the importance of his profession.

So that the individual laundry manager might com-

*Vice-president, H. W. Baker Linen Co. of California, Los Angeles. This article is taken from a lecture presented at the annual convention of the Association of Western Hospitals, in Los Angeles, May, 1957.

pare his figures with a "standard" or "average," I suggest that the National Association of Institutional Laundry Managers collect the linen replacement factors on major linen items from all sections of the country. After one year it would be possible to average the data and arrive at national and sectional averages which could be used as comparative guides.

If the linen replacement factors are high on a majority of items, the manager can be certain that he is wasting the institution's money and should initiate a more constructive linen maintenance program.

LINEN CONSERVATION

Linen conservation starts before linen is even delivered to the institution, namely, in the purchasing department. The laundry manager should work in close cooperation with the purchasing agent. If the laundry manager is responsible for proper and economical washing of linens, as well as looking after their longevity, he is not accepting his responsibility if he does not voice an opinion on the quality of linen foisted upon him.

Should his records indicate several linen replacement factors too high, he should first check the discarded items. If the number of discards is in line, he can be certain there is theft, which must be thoroughly investigated. After a check is made for theft, there should be a systematic analysis for improper handling of linens inside and outside the laundry plant. Before investigating outside, I suggest he check inside the laundry plant, where the accusing finger is always pointed.

Wash formulas and controls have resolved into a highly technical and specialized field of chemistry. Therefore, they should be checked by outside independent experts. The manager should not rely solely on satisfactory results of whiteness retention and tensile strength loss reports!

Whether or not he subscribes to technical assistance, at least he should keep on hand a test kit containing a small bottle of Orthotolidine to test for bleach which might not have been properly rinsed. Secondly, he should make frequent use of the Universal Indicator, which ascertains the pH.

The manager should learn to recognize immediately an oxycellulose condition of linens, which is the result of changing the structure of living cotton fibers to dead cellulose. There is no rejuvenating a piece of linen whose fiber has turned oxycellulose and is very brittle with little or no tensile strength. This condition is the result of too much bleach, too high a temperature, harsh alkalis, or the combination of these three contributing factors.

The accuracy of the records should be checked by spot-checking daily work sheets selected at random. If the records are reasonably accurate, the manager should check to see whether too much linen is being rejected needlessly at the flatwork ironers on the basis that it must be washed over.

To reduce re-washing the same stained items, the laundry should stamp these items with a distinctive mark, such as an X, and use them in a department which does not necessarily call for first quality linen.

Frequently items, especially sheets, become hung up and wrinkled in the automatic folder. In such cases, the item should be folded by hand and not set aside for a wash-over, as is usually the case.

The manager should carefully scrutinize discarded linen and know why it was discarded. For those items with a high replacement factor, he should keep a record of the number discarded because of normal wear, mechanical damage, or chemical damage.

Old and worn linen is easy to recognize because it has worn thin from abrasion. Mechanical damage may be recognized by a jagged tear. If this is happening to numerous items, a check should be made for sharp points of metal in linen carts, laundry chutes, or counting tables. Possibly a sharp instrument was not removed from a pocket before washing.

If mechanical damage is prevalent in one type of item, the laundry manager should check to see whether there is a pattern—that is, are the tears or holes appearing in the same approximate position on the damaged items? In such cases he should check outside the laundry. The cause can always be traced. Perhaps the nurses are pinning things to the sheets. This is a frequent cause for mechanical damage.

Chemical damage other than improper washing, which has already been noted, is more difficult to correct. Especially in hospitals, it is not uncommon for the laundry manager to be accused of using too much bleach because holes have appeared in garments, sheets and towels. There is really nothing mysterious about the appearance of these holes, when it is remembered that the disinfectants, astringents, antiseptics, sterilizing agents, and even foods, in most cases, are corrosive to textile fibers.

CHEMICAL BREAKDOWN

The actual chemical breakdown of the fiber seldom occurs immediately after the corrosive substance has come in contact with the cloth. The major portion of damage, in most cases, takes place during the time that the solution is drying into the fabric. Evaporation concentrates the corrosive substance, and aging brings about a complete breakdown of the complex of which the fiber is composed.

Unfortunately, in most cases this does not show up until the article has been laundered a number of times. Therefore, it is only natural that the laundry will be the most likely suspect, and the first accused. To prevent such chemical damage is difficult, if not impossible. The best solution is prompt washing or soaking. Soiled linens should not be allowed to sit around, especially if they are from departments in which chemical damage is known to be prevalent.

Laundry managers should look for small holes appearing in sterile wrappers, garments, and other items which pass through a hospital autoclave. Unfortunately, if the bleaching agent is not entirely rinsed out of the cotton fabric before such items are sterilized in

(Continued on page 55)

Expenditure Control

Another in a series on hospital organization, based on lectures given at meetings of the Association of Western Hospitals and allied state groups

II. Cost Accounting

By John H. Gorby*

● Sound modern institutional accounting practice not only requires that acceptable accounting principles be established for recording income and expenditures, but also that adequate analysis be made of the unit costs which make up these expenditures. Only by such recording and analysis can the economic results of the operation of a hospital be measured.

All levels of management should have a vital interest not only in total costs of operation, but also in unit costs. They should be concerned with such items as the cost of a patient-day, a pound of laundry, a meal served, or an outpatient visit. They should be concerned also with the costs involved in providing routine board and room care to a patient for one day in a ward, in a private room, or in a semiprivate room.

Such cost information will make an excellent tool available to the board and management for providing guidance and internal control, and for achieving economical operation. It will make possible the establishment of standard charges to patients for routine board and room care, and for ancillary services such as laboratory and x-ray.

Cost accounting is the process by which each dollar of income received and each dollar spent is measured in terms of the volume of activity recorded for each department of the hospital.

Volume of activity is defined as the number of units of service of all types which a department performs to accomplish its function. Typical units of service are number of patient-days, number of meals served, or number of laboratory procedures.

Cost accounting may also be described as the process by which income and costs can be measured against the number of units of service rendered by a department.

The system of expenditure accounting now in use in many hospitals does not account for the types and amounts of services which the institution receives for the outlay it has made. Uusually, the system provides nothing but a historical record of expenditures for services of individuals, and for materials, supplies, and equipment.

A good cost-accounting system, obviously, must record expenditures for services and material items. "Input," what is received, must be measured. It also is very important, however, to obtain a measure of "output," the results obtained from the dollars expended. Output should be measured in terms of such units as patient-days served, laboratory procedures accomplished, and medical records kept.

Two additional steps should be added, therefore, to the expenditure-accounting system now in common use. The units of service rendered should be measured for each hospital department or activity over a period of time, and should be related to the cost of rendering them, to produce unit costs.

MAJOR BENEFITS OF INFORMATION

The computation of unit costs on a continuing basis benefits hospital administration in several ways. Useful cost comparisons can be made. For example, present and past costs of a service can be compared. Not only do fluctuations in costs become apparent, but also a clue to their cause may be found.

In addition, accurate cost figures will help the hospital to recover the cost of patient care from welfare agencies and insurance companies. Cost-accounting information, likewise, is useful to the hospital in preparing reports to the public and the government, as well as to other agencies.

A good cost-accounting system also can make a very important contribution to strengthening budgetary control, and to simplifying the budgeting process. The ingredients contributed are accurate unit costs, and the separation of costs into those which vary as volume changes and those which remain fixed.

When this information is available, the process of budgeting expenditures is reduced to one of forecasting the number of units of service required for the budget period ahead. When the forecast is made,

(Continued on page 46)

*Administrator, La Mesa (Calif.) Community Hospital, and former chairman, Community Hospital Section, Assn. of Western Hospitals.

A UNIVERSITY HOSPITAL

A UNIVERSITY HOSPITAL
TYPICAL COST CENTERS AND SUGGESTED UNITS OF SERVICE FOR COST ACCOUNTING AND BUDGETING

COST CENTER	UNIT OF SERVICE
NURSING SERVICE	
– Administration	Nursing hours supervised
– 12 Nursing Units	Patient days
– Nursery	Patient days
PROFESSIONAL SERVICES	
– Medical and Surgical	Patient days
– Medicine	Patient days
– Neurology	Patient days
– Diagnostic	Patient days
– Obstetrics and Gynecology	Patient days
– Oncology	Patient days
– Psychiatry	Patient days
– Surgery	Patient days
– Urology	Patient days
– Residents and Interns	Patient days weighted, i.e., 1. Private 2. Semiprivate 3. Ward
ANCILLARY AND DIAGNOSTIC SERVICES	
– Anesthesia	Number of anesthesias
– Central Dressing	Dollar volume of charges
– EEG	Number of examinations
– Laboratory	Number of procedures, classified
– Pathology	Number of autopsies and number of tissue examinations
– Operating Room	Number of operations, classified
– Oxygen Therapy	Patient days of oxygen service
– Pharmacy	Number of prescriptions or requisitions filled

COST CENTER	UNIT OF SERVICE
ANCILLARY AND DIAGNOSTIC SERVICES (Cont'd)	
– Physical Therapy	Number of treatments
– X-ray	Number of procedures, classified
OTHER PATIENT SERVICES	
– Medical Records	Number of records circulated
– Ourpatient Department	Number of clinic visits
– Emergency Room	Number of emergency cases
– Social Service	Number of active case days
AUXILIARY HOSPITAL SERVICES	
– Housekeeping	Square feet
– Laundry	Pounds of laundry
– Food Service	Number of meals served
– Maintenance	Square feet
– Plant	Square feet
ADMINISTRATION AND MISCELLANEOUS	
– Administrator	Payroll
– Controller	Appropriate workloads
– Admitting Officer	Number of admissions
– Miscellaneous	As indicated

Exhibit I

the cost figure required to meet the level of operation anticipated is derived from: (1) multiplying costs that vary with volume of service by the number of units of service forecast, and (2) adding fixed expenses that do not vary with volume of service.

Such information is particularly useful to a hospital planning or undertaking an expansion program. Many of the hospital's fixed costs would not be materially higher if the patient load were increased to the full capacity of the hospital. Variable costs, in contrast, could be expected to fluctuate in direct ratio to the number of patients cared for.

The identification of costs which fluctuate with service loads is essential to good management practice, as well as to good cost accounting and budgeting.

THE COST CENTER CONCEPT

In order to make cost analysis and to determine unit costs, three major steps should be taken, all of them related to the "cost center" concept. A cost center is a function, activity, or organizational unit for which costs are segregated in cost-accounting practice. In hospitals, for example, typical cost centers include housekeeping, x-ray, pharmacy, and central sterile supply.

The first step is to determine the cost centers to be established. The second is to identify and total all of the costs which apply to a specific center. The third is to subdivide these costs by each component activity or operation, the cost of each type of expense, or the cost of serving each unit being served.

Classes of Cost Centers:

Cost centers may be divided into three classes or levels: primary institutional, intermediate institutional, and general service.

1. Primary institutional centers:

These centers are composed of the major types of patient services, namely, services to outpatients and services to inpatients. For inpatients, these cost centers are further subdivided by the kinds of accommodations provided. Primary centers ultimately are charged all of the allocated costs of the hospital, except those chargeable to activities separate from the hospital operation. Examples of non-hospital activities include research and teaching activities.

2. Intermediate institutional cost centers:

For the most part, these centers are composed of special units which provide services directly to outpatients and inpatients. Examples are laboratories, x-ray, pharmacy, and the delivery suite.

Direct and allocated costs first are accumulated for each of these centers to arrive at the total cost of each service. The costs then are reallocated to the primary cost centers on the basis of the amount of service rendered by the special units to patients in each primary center.

Establishment of total and unit costs for operating intermediate cost centers helps management to estimate the costs of expanding hospital facilities, and to determine the current allocated costs of the primary cost centers.

3. General service cost centers:

These centers are composed of the departments in the hospital which are necessary to administer it, but whose services are not limited to direct service to patients. Departments included are plant operations, maintenance and repairs, housekeeping, dietary, and laundry.

The establishment of general service centers and the accumulation of costs for them are necessary for two principal reasons:

a. The total cost of the activity, and the unit cost of its product or service are needed for management planning purposes. For example, it is important to know the total costs and cost per square foot for heating the hospital.

b. Grouping of such costs is necessary so that equitable distribution can be made to intermediate cost centers and, eventually, to primary cost centers.

In Exhibit 1, a method of cost distribution is presented schematically. Shown are each of the three types of centers, and the order and method of making distributions in a typical university hospital. All of the methods, however, provide for distribution of costs, successively, from general service to intermediate institutional and to primary institutional cost centers.

DETERMINING UNIT COSTS

There are at least three different basic methods for determining unit costs:

1. The cost-accounting system:

It has been demonstrated that the eventual result of cost allocation is to transfer charges from all general service and intermediate cost centers to the primary cost centers. Good accounting practice, however, requires that direct costs of all general service and intermediate cost centers be shown on the annual operating statement. As a consequence, it is essential that a separate cost-accounting ledger be established. Transfers and allocations then can be made in that ledger without disturbing the regular accumulation of direct charges in the expenditure ledger.

The expenditure and cost ledgers must be tied together by balancing control accounts. The particular forms used in the cost-accounting ledger will be governed by the type of accounting machines or hand-accounting methods used in the particular hospital.

Different types of statistical data must be accumulated on a current basis to show how much service is rendered by each cost center to every other cost center. Exhibit 2 shows the suggested units of service for a large hospital.

A means also must be developed for accumulating information on the number of patient-days and nursing hours, the dollar volume of charges, or other

(Continued on page 48)

SCHEMATIC REPRESENTATION OF COST DISTRIBUTION IN A UNIVERSITY HOSPITAL

Exhibi

A UNIVERSITY HOSPITAL
SCHEMATIC DEMONSTRATION OF STEP-DOWN METHOD OF COST DISTRIBUTION

Exhibit 2

statistical data which apply to the services rendered to each cost center. The use of Keysort* patient charge tickets enables daily analyses to be made of the service to private, semi-private, and ward beds on each nursing unit. This or similar methods of analysis are an essential part of any cost-accounting or cost-distribution system.

When the allocated cost per unit for a particular cost center's services does not vary greatly from month to month, it usually is desirable to develop and utilize standard costs for that center. A standard cost is an estimated cost per unit. It is based on actual costs accumulated during a prior period and can be used as a basis of distribution during a current period of operation.

Since the standard cost is an estimated figure for a current period, allocations using standard costs usually will not bring about a zero balance in the cost center being allocated. If these differences are slight, they can be carried over to the next month. If they are great, the standard cost must be recomputed.

2. The cost-accrual system:

Small hospitals may not need as elaborate a system for unit-cost determination as the one outlined above. In some cases, it may not even be necessary to establish a cost ledger. Expenditures may be accrued in the regular expenditure ledger and monthly work sheets prepared for the distribution of costs. The same principles apply as in a complete cost-accounting system, and the same basic statistical data are required for distribution purposes, but the added expense of maintaining a cost ledger is avoided.

The complete cost-accounting system provides unit costs on a more up-to-date basis than does a cost-accrual system. Usually, the decision as to the best method depends on the size of the institution and the resulting degree of complexity in its chart of accounts.

3. Cost-distribution analysis:

Another method of unit-cost determination is a one-time or periodic cost-distribution analysis. There are two major disadvantages of this type of cost determination:

a. It is an expensive method of determining unit costs, because of the need to analyze data which were not specifically accumulated for the purpose.

b. It does not provide current and continuing cost information for management.

The cost-distribution analysis is used only when it is vital to get cost information from expenditure ledger accounts, and it is not possible to wait until a cost-accounting system is installed and sufficient information is accumulated from operating experience. It is usually recommended, in these cases, that the one-time analysis provide the model for installation of either a complete cost-accounting or cost-accrual system.

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COMMUNICATIONS

(Continued from page 37)

3. Yes, but . . .

Communications between supervisors and employees can bog down when an argument develops. Everyone has opinions on different subjects, and some employees are prone to express their views in no uncertain terms. When there is a conflict of viewpoints an argument is the natural result.

Good employee relations has a basic principle that is well known to all hospital supervisors—*Don't argue!* Yet, there are times when it is important to change an employee's ideas and opinions to make the work move smoothly and to get things done.

The "yes, but" word magic can do this. When an employee raises some objection to doing something or accepting some rule, here is a three-step plan to follow in using this word magic:

First, agree with the employee. Say "yes" to his thoughts or ideas. This softens the blow of the counter argument and makes the employee more receptive to the other side of the issue.

Second, cushion the argument. This is merely an expansion of the "yes" idea. Agree and continue with this agreement to get out of the argumentative frame of mind. For instance, one might say: "Yes, I know how you feel about that. I had the same idea for a long time. In fact, I was sure it wouldn't work. But, . . ."

Third, present the other side of the argument with a "but" preface. This "yes, but" word magic will avoid starting an argument and will help open the mind of the employee.

Why not try this word magic in the next employee relations problem that develops?

First, ask the employee "when" he can do the assigned task. If possible, give him a choice of "when" he will do it.

Second, give him an example of how the work should be done. Make the illustration crystal-clear so there is no misunderstanding.

Third, if an argument develops, handle it with kid gloves by employing the "yes, but" word magic. This will change the argument to a friendly discussion.

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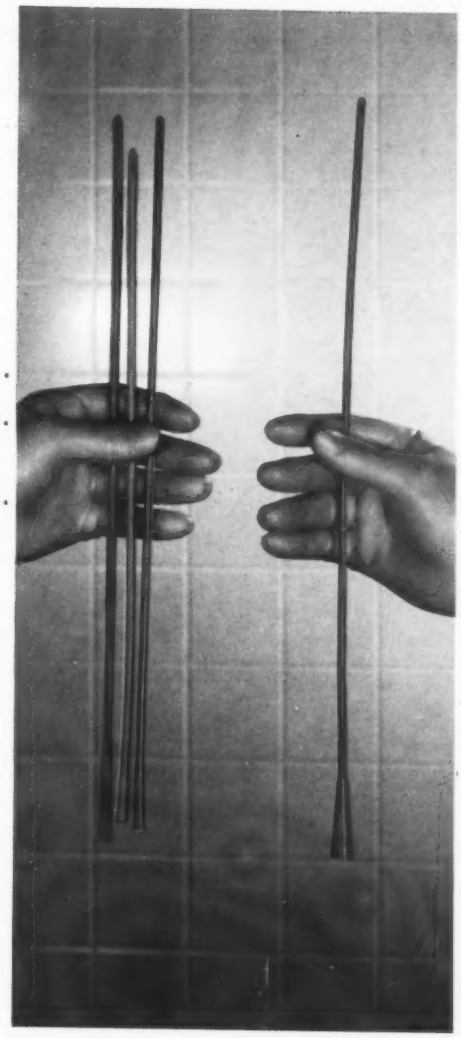

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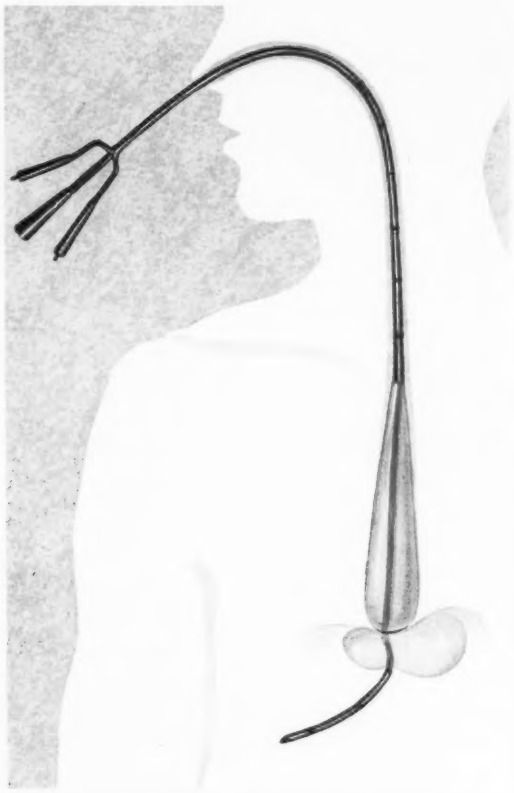
for emergency control of hemorrhage from esophageal varices



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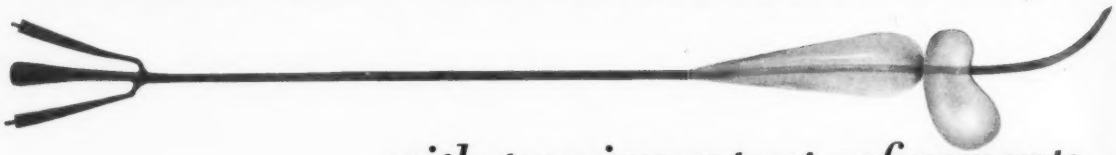

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Planning a Hospital Heliport

By Amos E. Gloster*

Rockaway Beach (N. Y.) Hospital, a 200-bed hospital on which construction began last month, will have a heliport in its backyard.

This innovation in hospital service required special consideration in design and construction. These are some of the specifications we established in planning the landing port.

One of the prime requirements in deciding the location of the heliport is that it be close to the emergency suite of the hospital. At the Rockaway Beach Hospital, this was solved by extending the ambulance drive, leading to the emergency entrance, to the heliport.

Adequate space and absence of obstructions to helicopter navigation are other factors to be considered in deciding the location.

The construction of the landing pad is not difficult. A 6-inch-thick concrete slab, reinforced on both sides with bars, is adequate on soil of average bearing capacity.

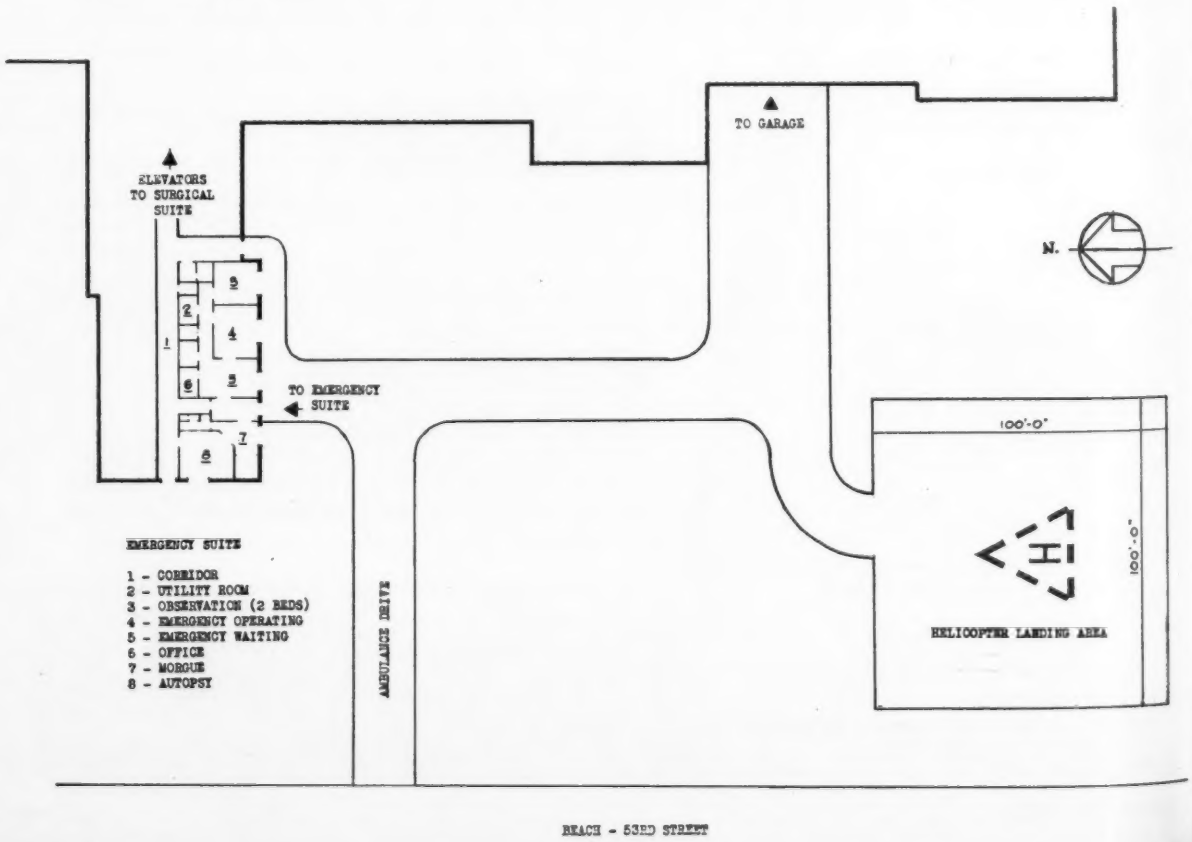
The landing field or "touch down area" requires a space 100 feet by 100 feet which should be clearly defined by a painted border one foot wide. The marking symbol for the helicopter consists of a segmented, equilateral triangle enclosing the letter "H." This symbol should be placed in the center of the touch down area with the solid apex on the triangle pointed true north. The sides of the triangle should be 32 feet long, composed of stripes two feet wide. The specifications for the letter "H" are 10 feet by 5 feet, 6 inches, composed of 15-inch-wide stripes.

The stripes should be painted in a color which provides sufficient contrast with the background material. A reflectorized or luminous paint is highly desirable.

All obstructions or flying hazards in the area should be marked with painted stripes consisting of alternate bands of white and "Aviation Surface Orange."

Further information on building a heliport may be found in the Civil Aeronautics Administration manuals TSO-N22, *Heliport Day Markers*, and the *Obstruction Marking Manual*. These booklets are available from the Aviation Information Office, Civil Aeronautics Administration, Washington 25, D. C.

*Gloster & Gloster, Architects, Rockville Centre, N. Y. Mr. Gloster is a member, American Institute of Architects.



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Regional Differences in U. S. Hospitals

By Louis Block, Dr. P.H.

Second in a series

● There are regional differences in the numbers and kinds of hospital facilities and services available, and in their utilization. The role of the regional hospital can be best portrayed by studying it as a part of the total United States picture, and as an entity in itself.

The largest numbers of:

1. All hospital beds are in the Middle Atlantic region.

2. All short-term general hospital beds are in the Middle Atlantic region.

3. Nonprofit short-term general hospital beds are in the Middle Atlantic region.

4. Proprietary short-term general hospital beds are in the West South Central region.

5. Governmental (excluding federal) short-term general hospital beds are in the Middle Atlantic region.

6. Long-term general hospital beds are in the Middle Atlantic region.

7. Psychiatric hospital beds are in the Middle Atlantic region.

8. Tuberculosis hospital beds are in the East North Central region.

9. Federal hospital beds are in the South Atlantic region.

Short-term general hospital beds account for from about one-third to two-fifths of all hospital beds in a region. Of these, nonprofit hospital beds are greatest in number.

Psychiatric hospital beds are greater in numbers than any other classification group in the New England, Middle Atlantic, South Atlantic, East North Central, East South Central, and Pacific regions, while short-term general hospital beds are greater in numbers than any other classification group in the West North Central, West South Central, and Mountain regions.

*Based on the 1956 Administrators' Guide Issue, *Hospitals*, Journal of the American Hospital Association.

Number of Beds

1. The Region as a Part of the United States

Percent of	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific	Total
Total	7.6	25.0	12.4	20.3	5.4	8.8	7.4	3.3	9.8	100.0
Short-Term General	6.8	22.1	12.3	20.4	5.5	10.6	8.8	3.8	9.7	100.0
Nonprofit Short-Term General	8.2	25.0	10.6	23.0	4.3	11.4	5.8	3.9	7.8	100.0
Proprietary Short-Term General	1.3	12.4	20.1	5.4	13.0	6.2	27.7	2.0	11.9	100.0
Gov'tal (Excl. Federal) Short-Term General	4.5	17.1	14.6	17.1	6.9	9.5	12.1	4.0	14.2	100.0
Long-Term General	9.1	30.4	7.6	31.0	1.7	5.1	1.7	1.6	11.8	100.0
Psychiatric	8.7	29.5	10.6	20.8	4.8	8.3	6.0	2.6	8.7	100.0
Tuberculosis	7.1	19.4	17.8	21.6	6.8	6.5	7.6	3.3	9.9	100.0
Federal	5.7	16.4	19.6	13.1	8.4	7.6	10.7	5.4	13.1	100.0

2. The Region as an Entity in Itself

Percent of	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific
Short-Term General	31.7	31.4	35.0	35.5	36.0	42.5	41.9	40.6	35.0
Nonprofit Short-Term General	26.1	24.2	20.9	27.5	19.2	31.4	18.9	28.7	19.3
Proprietary Short-Term General	0.4	1.1	3.7	0.6	5.5	1.6	8.6	1.4	2.8
Gov'tal (Excl. Federal) Short-Term General	5.2	6.1	10.4	7.4	11.3	9.5	14.4	10.5	12.9
Long-Term General	5.7	5.8	2.9	7.3	1.5	2.8	1.1	2.3	5.7
Psychiatric	50.1	51.9	37.7	45.1	39.2	41.6	36.0	34.4	39.5
Tuberculosis	4.0	3.4	6.3	4.7	5.5	3.2	4.5	4.3	4.5
Federal	8.5	7.5	18.1	7.4	17.8	9.9	16.5	18.4	15.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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- Standard Solutions
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- Parenteral Infusion Equipment
- Amigen (high calorie) Solutions

1952
research

1947
research

- Amigen Protein Solutions
- Parenteral Infusion Equipment
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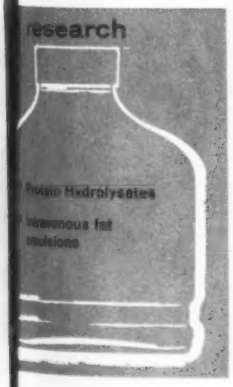
1937
research



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**Elman, R.: Protein Needs in Surgical Patients, J. Am. Dietetic Assn. 32:524 (June) 1956.*

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SYMBOL OF SERVICE IN MEDICINE

Review of Hospital Law Suits

- Drug Advertising
- County Hospital Liable

By Leo Parker
Attorney at Law

• According to a late higher court decision, a manufacturer of drugs can lawfully advertise that the drugs will afford temporary and partial relief of minor aches, pains, or fever. Any other exaggerated claims are illegal.

In Hodes Pharmacal Co. Inc., v. Federal Trade Commission, 208 Fed. (2d) 382, these facts were disclosed: The manufacturer of Imdrin engaged in an extensive advertising campaign by means of radio announcements and large advertisements in newspapers and magazines. The first line in the printed ads usually contained the statement, in large bold type, "Amazing new discovery for rheumatism, arthritis," followed by a subhead, "Hospital tested. Stops swelling, uncorks joints, contains sensational new research discovery."

The ads further stated: "Persons whose cases of suffering have been thought almost hopeless, yes, even people who had suffered and hoped for 20 years, were able to live free of pain like happy human beings once again."

The Federal Trade Commission ordered the manufacturer to cease and desist from making these claims and representations in advertising their drug.

The manufacturer appealed to the higher court and proved that each tablet of Imdrin contains 1.9 grains acetylsalicylic acid, 1.5 grains manganese salicylate, 2.3 grains calcium succinate (anhydrous), 0.16 grain caffeine, and 1 mg. thiamine chloride. Directions were: "Two tablets before each meal with water." Also, the manufacturer proved by overwhelming evidence that the drug did afford temporary relief from pain and discomfort incident to many rheumatic and arthritic conditions.

The higher court held that the manufacturer's representations in its advertisements of the drug were false and misleading in material respects and did actually mislead and deceive the purchasing public, and constituted false advertisements within the meaning of the Federal Trade Commission. On the other hand, the higher court decided that the manufacturer could lawfully advertise that the drug would afford temporary and partial relief of minor aches, pains or fever. The court said:

"We agree with the conclusions of the Commission that petitioner (manufacturer) was engaged in unfair and deceptive practice in commerce. It was overwhelmingly established that Imdrin affords relief for the pain and discomfort incident to many rheumatic and arthritic conditions. Petitioners (manufacturers) should be permitted to represent the truth, but be required to refrain from making the highly exaggerated claims which they have heretofore made."

COUNTY HOSPITAL LIABLE

A few weeks ago a higher court held that a county hospital is liable in damages to a patient injured through negligence of an employee.

In Wittmer v. Washington County Hospital, 80 N. W. (2d) 561, it was shown that an employee of the hospital put too much wax on a hospital floor. A patient was seriously injured when she slipped on the wax and fell. She sued the hospital trustees, hospital superintendent, and the hospital and county, for heavy damages. The court held the patient entitled to a recovery, and said:

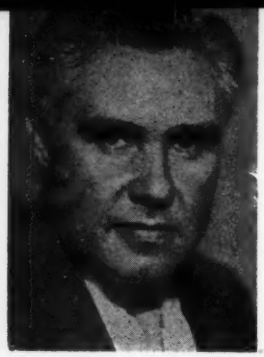
"We believe that the tendency, based upon sound reasoning, is to deny immunity where injury results from negligence of officials or agents exercising powers purely ministerial in reference to matters which cannot be said to pertain to duties purely public. We think the operation of a hospital by a county is a proprietary function, at least so far as a pay patient is concerned, and should be considered in the same light as is a private hospital."

SURETY LIABLE ON BOND

According to a late higher court decision, a contractor's surety is liable strictly on its bond, and not upon an agreement made by the contractor as to the amount due.

In Southern Fireproofing Co. v. S. T. Kenyon & Co., 137 N. E. (2d) 782, evidence disclosed that a general contractor entered into a written contract to construct the Scioto County Receiving Hospital. The contractor furnished bond with the Globe Indemnity Co. as surety. Later the Southern Fireproof Co. entered into a contract as subcontractors, agreeing to furnish labor and masonry materials in construction of the hospital for the contract price of $197,000. The Southern Fireproofing Co. was paid $187,397.55, and claimed $397.55 for "extras" in addition to the contract price, leaving an unpaid balance of $10,000. The contractor disagreed.

In subsequent litigation, the higher court held that since the contractor's surety was not a party to an agreement whereby a balance was agreed upon, the surety's liability could not be based upon the alleged account stated but only upon the bond.



Consultant's Corner

By John G. Steinle

• We have had a number of inquiries regarding the use and function of hospital consultants. The main points of interest can be summarized in the following four questions:

Q. When should outside consultation be requested by hospitals?

A. 1. When expenditures become out of balance with income. The type study done in such cases is not designed to develop savings in expenditure, which might be ill-advised, but to determine if expenditures are justified in terms of the hospital's over-all program. If expenditures are found to be justified, it then should be the responsibility of the trustees either to finance the deficit or to change the program. Generally, the consultant must present forcefully to the trustees the necessity for making such a decision. To aid them in doing so, he must draw a complete picture of the effects of either decision.

2. At a major milestone in the hospital's development. This may be either administrative or functional. Often, the employment of a new administrator, or a major change in the trustee composition will signal a need for consultation. The scope of studies at this point generally requires a reconnaissance of administrative management, a review of the hospital's objectives, and recommendations for improvements.

3. As a preliminary to a major construction project. The role of the consultant should be to define the program carefully—that is, what should be done. He should also define all procedures so that the building can be designed as a "skin" around the administrative and medical procedures that will be conducted within the building.

4. To cope with special problems. Hospitals generally cannot afford to employ sufficient "staff" personnel to make special studies in such areas as the outpatient department, laboratory, x-ray department, or pharmacy. An effective consultant will have a "staff pool" of personnel available to clients to perform such special studies.

Q. What should a hospital expect from a consultant?

A. Very few hospitals understand that consultants are usually engaged for a specific purpose. Consequently, hospitals often expect too broad a contribution from consultants. There is a danger that consultants will be viewed as replacements for management while they are in the hospital. On the contrary, since the functions of consultants may be summarized as fact-finding, developing recommendations, and presenting facts and conclusions to the trustees, they often have limited responsibility for implementation.

Ideally, the consultant should be employed not only to make recommendations but also to assume a responsibility for implementation. The effect of this responsibility will often change the consultant's role from that of an investigator to that of a teacher.

Q. How should the consultant work with the hospital?

A. The primary role of an effective consultant is that of achieving an improvement through education. This may be done at the trustee, administrative, department head, or individual employee level. The greatest problem occurs when the employee considers the consultant an inquisitive investigator instead of a co-operative collaborator whose objective is to make the job easier.

If the consultant achieves proper rapport with the employees, they should feel free to exchange ideas and to accept suggestions. The objectives and approach of the consultant should be direct, not devious. The administrator should be fully informed at all times of the ideas and progress of the consultant. This is essential because the success or failure of the consultant's work is dependent on the continuity of implementation by the administrator. To a large degree, the work of the consultant should be controlled by the administrator and the trustees. The consultant should determine before the study is undertaken whether or not the administrator is a person with whom he can work, and, if he is not, the consultant should refuse the assignment.

Q. What results can be expected from a consultant?

A. The effectiveness of consultation is dependent on the following factors:

- The ability of the consultant.
- The degree of his acceptance by the hospital staff.
- The capacity of the administrative staff of the hospital to implement the recommendations.

Unfortunately, the motives for employment of a consultant are not always apparent nor are they necessarily in the best interest of the hospital. Occasionally, a consultant is selected on the basis of his willingness to approve or lend credence to a prior act or a preconceived plan of action.

HOUSEKEEPING

(Continued from page 40)

Immediately below the executive housekeeper are the working supervisors—the core of the housekeeping operation. They are responsible for the work assigned to their groups, and they accomplish it by leading their group members in performing the work. In every hospital, they should be sufficient in number to represent all of the key jobs of the housekeeping operation. In other words, there should be a working supervisor for every housekeeping job required to maintain the barest minimum housekeeping operation. Then, the work of these supervisors can be supplemented by that of additional personnel to raise the operation to an optimum level.

At North Shore Hospital, the importance of the working supervisor is fully recognized. Of the thirty full-time employees on the housekeeping staff, ten are working supervisors (see Figure 1, page 39). These include:

1 hospital housekeeper
4 hospital maids—training
1 leadman—serviceman group
1 leadman—day porter group
1 leadman—night porter group
1 leadman—special cleaning group
1 leadman—linen room group.

This staff structure gives a ratio of one working supervisor to two or three other employees.

The housekeeping organization at North Shore is thus consistent with the principles for work groups—that is, a working group exists for each function—and with the recommendations for size of work groups—that is, each group contains from two to five employees.

Wages

Traditionally, housekeeping personnel are classified at the lowest level of expendable members of the hospital organization. The general thinking is that housekeeping duties can be accomplished by totally unskilled labor, and that the occupation holds no potential for growth and development. The natural consequence of this thinking is lowered incentives, as typified by prevalent wages, which make it virtually impossible to attract people with any degree of ability.

This narrow outlook persists, in spite of the fact that housekeeping, for the most part, is people.

As a fundamental step toward improving a housekeeping program, management must raise its sights with regard to personnel. It must establish incentives which will make positions attractive to people with ability. Two incentives should be established: growth potential within the organization, and equitable compensation for work performed.

Growth potential should be provided in the organization structure by establishing progressive levels of responsibility in housekeeping positions, enabling upward movement of qualified personnel. Full application of the working supervisor position will go a long way toward fulfilling this incentive.

Equitable compensation for work performed should be provided by a wage structure that is at least comparable with that of housekeeping employees in industry and commerce. At North Shore Hospital, the wage scale, in general, provides salaries comparable to those obtainable in industry and commerce in the area. In addition, the scale provides ample opportunity for increased compensation as an employee moves up from one level to the next. Finally, the scale, with its range for each position, provides opportunity for rewarding exceptional performance at any level.

The wage scale in use at North Shore has been developed to meet the requirements and conditions of that hospital. Similar scales should be developed for each hospital, using the standard personnel administration technics of job classification and area wage surveys.

Developed and applied to meet the specific conditions of each hospital, the principles discussed in this article will make a major contribution to an effective housekeeping operation.

LINEN MAINTENANCE

(Continued from page 43)

the autoclave, the high temperature compresses the total amount of bleach action into a relatively short period. This sudden oxidation is explosive in nature and literally bursts the fabric. Therefore, laundry personnel should be certain that no bleach remains after the final rinse.

As a safeguard, the laundry manager should discuss autoclave temperatures with the surgery supervisor, for many hospitals are unnecessarily baking their surgical linens to death.

One should think of all linen items as being composed of living cells which must be rested or relaxed between washes if the best length of service is to be obtained from the item.

An institution can increase the life of its linens as much as 20 percent, and I honestly believe this to be a conservative figure, by allowing linens to rest 24 hours on the shelf before being placed in service again. A well-run hospital laundry will maintain a minimum of six linen changes, whereas four seems to be the minimum for a hotel. New stock should be added to the linen in service on a planned and orderly basis. Preferably, new throw-ins should be added on a weekly basis, but *never* less frequently than monthly.

Institutional laundry managers should not permit themselves to be vulnerable to criticism because they allow textile maintenance to be merely a necessary evil instead of good business. They must accept realistically the fact that they are no longer simply washmen, and must accept or initiate the responsibility of maintaining an institution's linens. Such maintenance cannot be a hit-or-miss program. It must be well organized. The linen replacement factor is the pulse to linen maintenance.

BUYER'S GUIDE

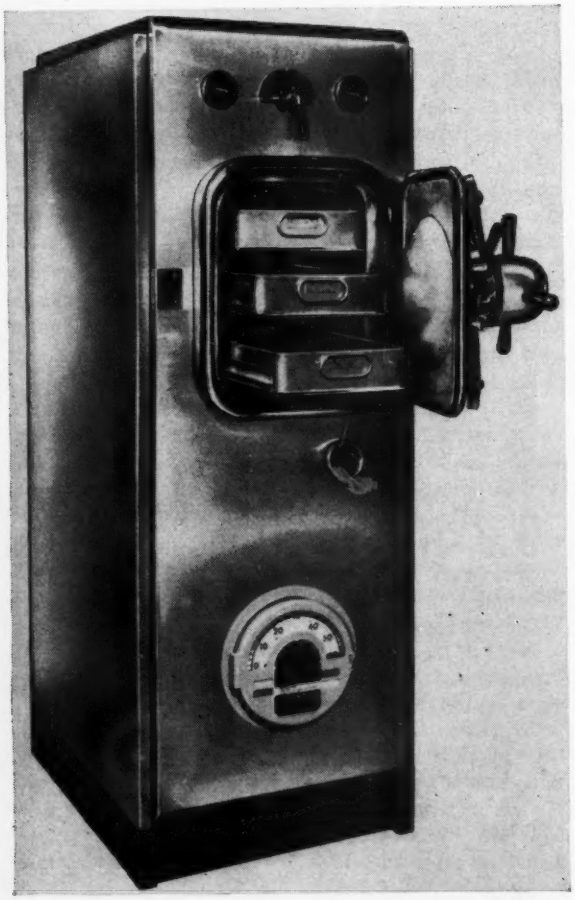
For further information on any of the products, please check the Buyer's Guide number on the reply card opposite page 132.

Evelyn Schwanke

Buyer's Guide Editor

400. Steam sterilizers

New "Straightline series" of pressure steam sterilizers has been developed to furnish maximum chamber capacity per unit cost. Square shape of chamber is adapted to the rectangular shape of most hospital packs, prepacked boxes of instruments, and glass containers. The design has been incorporated into Castle dressing sterilizers, formula sterilizers, laboratory autoclaves, and Hi-Speed instrument sterilizers. Instrument sterilizer (shown below) has special valving which gives 270° F. in 40 seconds. Filing-cabinet rack fits chamber and holds three large trays to permit processing of a full kit of instruments. Units can be furnished with either steam or electric heating. Wilmot Castle Co.



401. X-ray film cutter

Portable "Trim-X" x-ray film cutters have sharp cutting edges to round the corners of x-ray films, remove jagged holes left by developing hangers, and serve as a safety measure by preventing scratches. Top plate is aluminum, and extension leaf folds down when not in use. Clippings drop into box of machines for removal through small chip-door. Guard rails guide the film into position for cutting. Wolf X-Ray Products, Inc.

402. Orthopedic mattress

"Back-Care" orthopedic-type mattress is the first mattress to feature a built-in bedboard. Specifically intended for persons with back trouble, mattress has bedboard "sandwiched" between a double-deck construction of upper and lower layers of springs. Upper layer adjusts to body contour for greater sleeping comfort; lower layer acts in conjunction with bedboard to equalize weight, prevent body sag. The Simmons Co.

403. Paper receptacle

"Dispos-it" provides solution to problem of what to do with soiled tissues, cotton swabs, paper straws, etc., used by patients with colds or virus infections. These disposable cardboard receptacles are also suggested for use in the operating room. The boxes measure 8x 5x4″ and are packed flat. Disposal Products.

404. Holding mitt

"Tomac" holding mitt, made of washable cowhide, fits either right or left hand. Open edges are bound with smooth tape. Heavy-duty 1"-wide webbing secures the wrist. Webbing at top of mitt adjusts grip to stirrup handle or any exercise equipment. Double-prong metal buckles are chromed and rust-resistant. Sizes: small, medium, large. Rehabilitation Products, Division, American Hospital Supply.

405. Dishwashing compound

"Hi-Time" is a detergent specifically designed for fast washing cycles and heavy soil loads. Manufacturer recommends it for machine use for quick cleaning of dishes, glasses, and silverware. Six oz. will make 25 gallons of washing solution. Available in 350- and 125-lb. fibre drums. Calgon Co.

406. Dual-purpose sponge

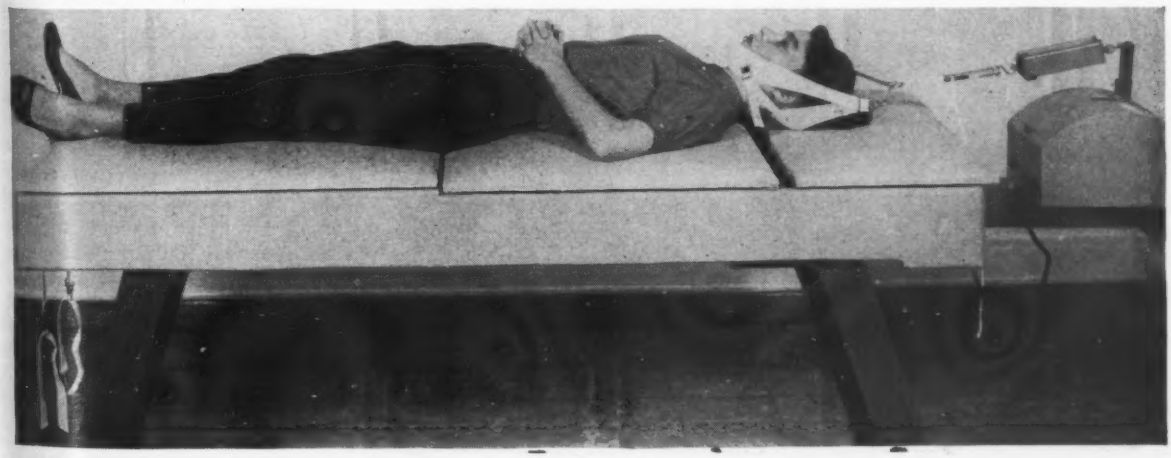
"Combo" synthetic sponge combines abrasive and absorbent materials in one unit. It is constructed of a layer of plastic foam joined to a layer of cellulose sponge by a special water-resistant adhesive. Plastic side scours and scrubs; cellulose side absorbs and wipes. E. I. Du Pont de Nemours & Co.

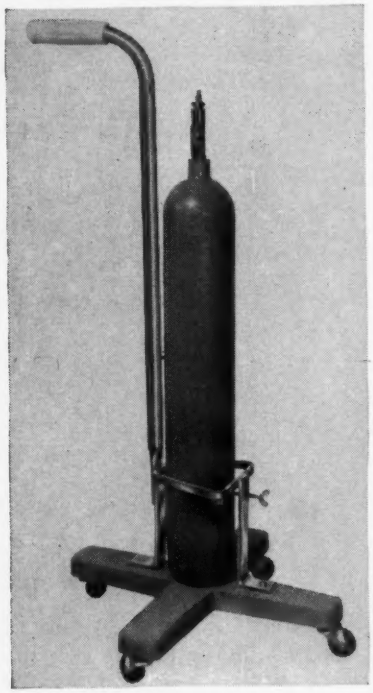
407. Traction table

Traction and therapy table is designed for horizontal cervical and lumbar traction. Each of the three sections of table operates independently or in a series on ball-bearing rollers in a channel track. Thoracic region remains stationary for counter-traction. Tractomatic portable intermittent traction machine hooks up directly to a sliding shelf, so that additional equipment is not necessary. When closed, it is treatment table. Tru-Eze Mfg. Co.

408. Oxygen tent

New Aqualor tent comes in two models—the standard model and a high-humidity unit. Both have an easily removable door on top of the cabinet which permits cleaning of refrigeration coils with a hose or by any other means. A large volume drain carries off the wash-water, so that tents can be cleaned easily after use. High-humidity model is equipped with a nebulizer to provide humidity up to 100 percent. Two oxygen flowmeters—one for nebulizer and other for tent canopy—make it possible to produce any condensation of oxygen desired in the cabinet, along with desired humidity. McKesson Appliance Co.





409. Cylinder dolly

The #772 small cylinder safety dolly has a four-legged cast-iron base mounted on ball-bearing swivel casters. Mounted on it is a chrome-plated steel rack specially tapered to accommodate either "D" or "E" cylinders. A chrome-plated steel 1" tubular handle with a rubber hand grip is mounted on the steel rack for convenience and safety. Lumex, Inc.

410. Rust eradicator

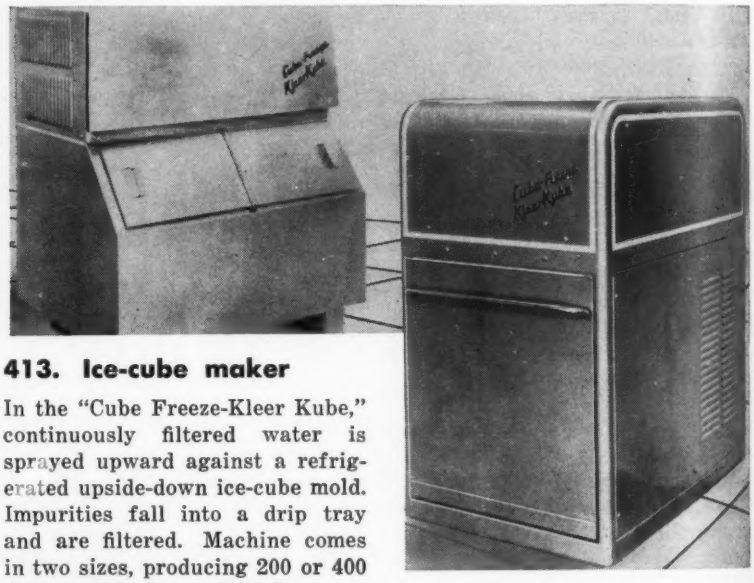
Zinktron is a new type of prime coating, said to be five times stronger than red lead primers. A zinc-based paint, it is applied with a brush or spray to either new or old rusted metals. Any oil-based paint may be used over it. Constad Laboratories.

411. Nebulizer

Particles are generated in the therapeutic range of .5 to 3.0 micra in this nebulizer. Flow rates range from 3 l.p.m. to 15 l.p.m. Warning whistle tells of any obstructions in the outlet tubing. Special tubing reducer allows use with either small, smooth bore, or large corrugated inhaler tubing. Nebulizer also serves as a humidifier when water is placed in it. Removable liquid strainer guards against obstructions becoming lodged in liquid nozzle. Ohio Chemical and Surgical Equipment Co.

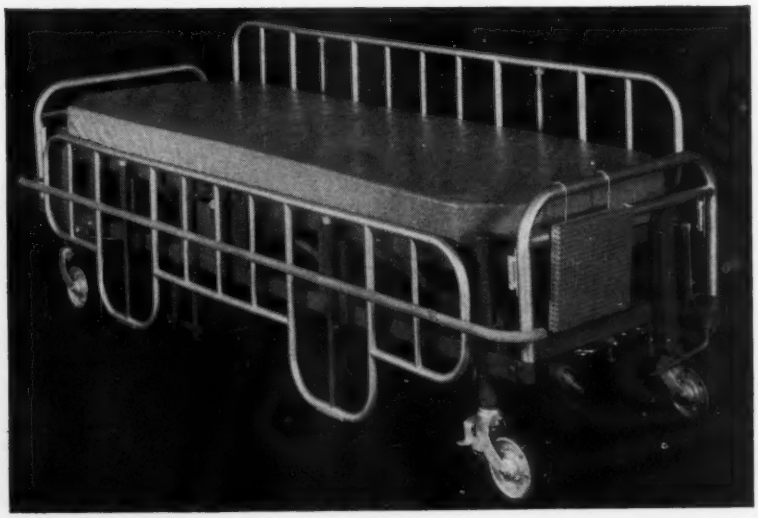
412. Conductive flooring

Antico conductive vinyl flooring is a new static-proof tile designed specifically for hospitals and laboratories. According to the manufacturer, it will reduce to a minimum the possibility of explosions in operating rooms and other places in which an electrostatic discharge may ignite flammable or explosive material. Tile is 3/16" thick and is available in four color combinations. American Biltrite Rubber Co.



413. Ice-cube maker

In the "Cube Freeze-Kleer Kube," continuously filtered water is sprayed upward against a refrigerated upside-down ice-cube mold. Impurities fall into a drip tray and are filtered. Machine comes in two sizes, producing 200 or 400 lbs. every 24 hours. Cold Corp.

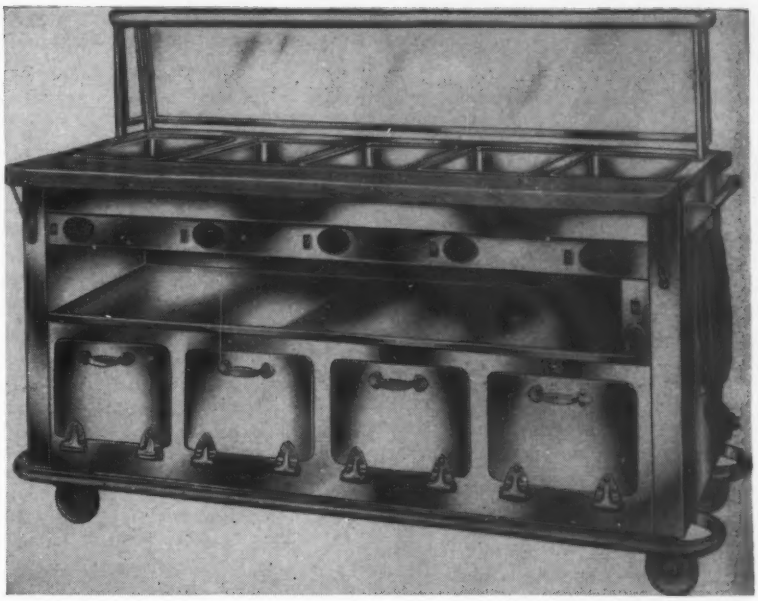


414. Recovery bed

This bed, designed for use in the recovery room, labor room, or emergency room provides safety and comfort and at the same time the mobility of a stretcher cart. Including the all-around rubber bumpers, bed measures 33" wide and 83" long. A 4" foam rubber mattress with conductive rubber spring can be adjusted to any desired position. Two wheels are equipped with brakes to make the bed immobile. A hand crank converts the bed from low to high position. Other features include a rack for an oxygen cylinder, IV rod, drainage bottle rack, and chart holder. The Hill-Rom Co.

415. Serving carts

Three "Thermotainer" serving carts are the first items of a new line of mobile food handling equipment. Each HB model holds three 12x20x2" pans in storage compartments. The open serving top of each unit has three, four or five steam table wells. Each well is controlled by a separate thermostat and is individually insulated so that it may be used for either serving hot food or cold food storage. Carts are constructed of die-stamped heavy-gauge stainless steel. Franklin Products Co.



416. Patient hood

Absorbent terry cloth hood protects patient in oxygen tent from drafts and absorbs perspiration.

The Tomac hood launders as easily as a turkish towel, manufacturer says. It has double-stitched seams and all edges are bound with tape. Snaps and tape ties permit fit for all adult patients. American Hospital Supply Corp.

417. Plastic trays

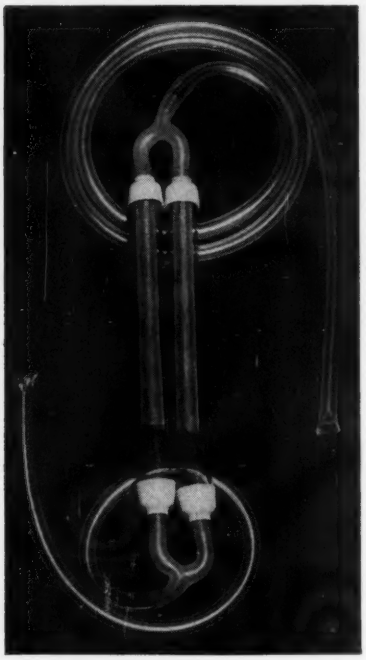
"Beauti-Trays" by Wear-Ever combine color and durability of vinyl with the strength and lightness of aluminum. Newly introduced serving trays are available in five sizes, finished in gray linen or sun-tan. Permanently bonded to aluminum, the vinyl will not fade or discolor and can be washed in dishwashers. The finish will not warp or crack and is stain resistent, according to manufacturer. The Aluminum Cooking Utensil Co., Inc.

418. Dictating machine

"Stencord D," dictating and transcribing machine in one unit, features a conference-type microphone and magnetic belt so that dictation can be done in a whisper or conferences between doctor and patient can be recorded. Weighing only 9 lbs., it can be transported to ward or laboratory. The speaker can back-space as often as he likes and make corrections verbally rather than in writing. According to the manufacturer, the magnetic belt is reusable thousands of times. Stenocord Division, Pacific Instruments Corp.

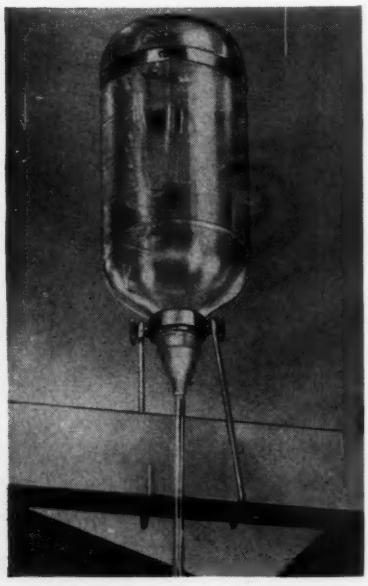
419. Bedside aspirator

Mobile, diaphragm-type compressor-aspirator is designed for bedside or chairside use wherever an electrical outlet is available. The Bedside Dia-Pump provides regulated suction up to 22 inches of mercury, or filtered, oil-free compressed air up to 30 psi. Pump is mounted on rubber casters and all controls and both gauges are at bedside height. Features include separate, easy-to-read gauges, needle valve controls, 1000-cc. suction bottle, clear plastic connecting tube, and a glass-topped utility jar. Air-Shields, Inc.



420. Blood filter set

A disposable blood filter set is now available for use with artificial heart-lung apparatus in heart surgery. The set has a double filter unit with a maximum flow capacity of two liters of blood a minute. It is adaptable for use with various types of artificial heart-lung machines. Abbott Laboratories.

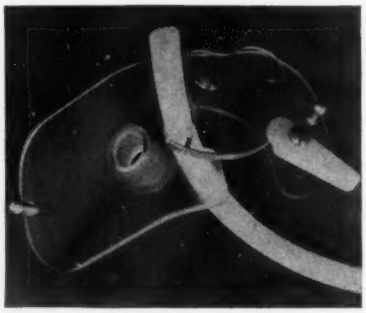


421. Precision balance

Two major improvements announced in the Cahn Model M-10 "Electrobalance" are: maximum capacity is up to 100 mg. from 50 mg. without loss of sensitivity or accuracy; and maximum temperature of the weighing compartment when operated remotely is up to 250°F from 125°F, permitting rapid moisture and solvent determinations. The weighing compartment can be controlled remotely through four wires while located in an oven. Measuring assembly remains outside. According to the manufacturer, the unit has such high sensitivity that it eliminates the need for a microbalance room. Cahn Instrument Co.

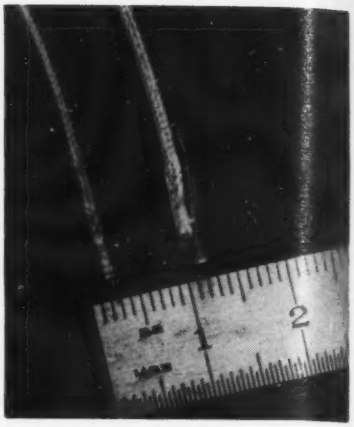
422. Tube holder

One-piece combination bite block and endotracheal tube holder made of transparent acrylic (vinyl) incorporates a tubular bit block and a positive locking mechanism to secure the tube, which can be inserted after the adapter has been fitted. The tubular shape of the bite block is designed to permit suctioning without disturbing the tube, and the transparent material allows the anesthesiologist to observe the lips and oral cavity. R. H. Hawks Division, Sierra Engineering Co.



423. Bottle hanger

Drainage bottle hanger assembly makes it possible to utilize old narrow-neck solution bottles. Assembly consists of a brass bottle top ring and two 5″ hanger wires that fit any bed rail. The Pharmaseal plastic urinary drainage tube completes the assembly. American Hospital Supply Corp.



424. Phonocatheter

Tiny microphones for insertion into the heart via the venous or arterial trees are now available to allow point-to-point diagnosis from inside the heart. These units are available in single-lumen form to supply acoustic output only and double-lumen form to supply both acoustic output and a channel with which to measure pressure, withdraw samples, or insert dye. The manufacturer also produces accessory transistorized and self-powered preamplifiers which will allow the acoustic signal from the heart to be recorded on any standard EKG recorder. American Electronic Laboratories, Inc.

425. Deepfreeze

New deepfreeze unit, with two compartments, is designed for the preservation of arterial segments, bone, skin or corneal grafts. No installation required, other than plugging unit into a 110-volt line and providing a water supply and discharge. The unit, about the size of an average desk, is designed to keep constant temperatures of -40°F, -100° F, or -125° F. Tenney Engineering, Inc.

426. Slipper

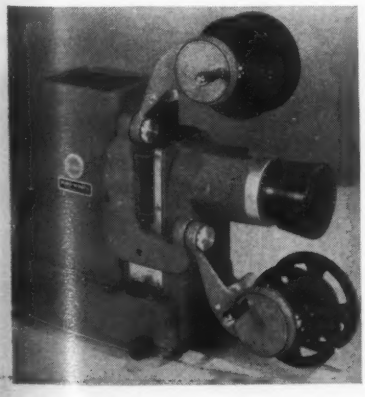
Disposable paper slipper is made of waterproof stretchable white stock so that one size fits all foot sizes. Samples are available. Busse Hospital Products.

427. Steel bucket

Newest addition to Green Label line of floor-washing equipment is the oval bucket made of galvanized or stainless steel. It is mounted on "Rol-Easy" ball-bearing casters. The steel is reinforced with deep corrugations and bound with a rolled non-corrosive body wire. All seams are hand-soldered and pressure-tested. The buckets are available in 26- and 35-qt. sizes. Janitorial Supplies Division, Market Forge Co.

428. X-ray projector

A new 35mm. x-ray microfilm reader-projector brings out fine tonal gradations in microfilm. It can be used for individual comparisons and studies or for large audience viewing for teaching purposes. The manufacturer says that any degree of magnification is possible. Known as Model XA, it features a Kodak Ektanon projection lens (5″, f 2.8), a 500-watt projection lamp, and a blower to keep the lamp cool. The projector measures 6½ x 12 x 14″ and weighs 16 lbs. Atlantic Microfilm Corp.

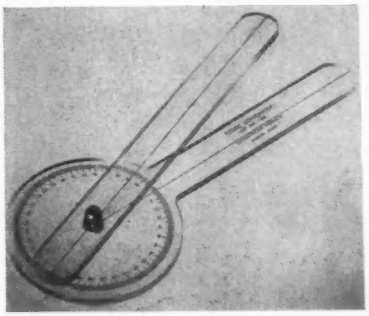


429. Narcotics dispenser

Narcotics counter-dispenser, made of Eastman Tenite butrate plastic, holds 20 tablets and releases them one at a time at the press of a plunger. Clear face of the unit permits immediate visual inventory. For refilling, a plastic tool is provided to remove the face of the dispenser. Cole-Sewell Engineering Co.

430. Plastic goniometer

Clear Tomac plastic goniometer permits the therapist to determine the exact pivot over the anatomical joint, and to quickly locate bony prominences or skin marks to identify and observe extent of joint movement. Prominent center line on each 10″ arm facilitates measurement of large joints. Tension pivot holds arms in any set position. The double 180° scale is permanently etched in plastic. Rehabilitation Products, Div. of American Hospital Supply Corp.

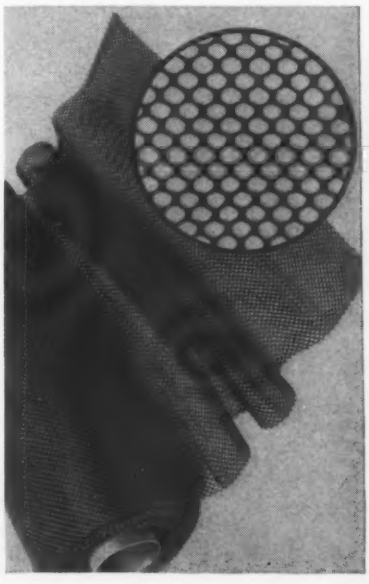


431. Ice storage bins

Portable and stationary ice-storage bins permit storage and service of ice from locations other than those of the ice-maker. Mounted on a four-wheel assembly, the portable model features stainless steel construction and a 150-lb. capacity. It is easily pushed through aisles and narrow spaces. Insulated, with Fiberglas, the unit is 33″ high and 32″ long. The stationary unit has a sloping front for easy access to the 150-lb. bin. Six-inch legs enable easy cleaning beneath the unit. Nor-Lake, Inc.

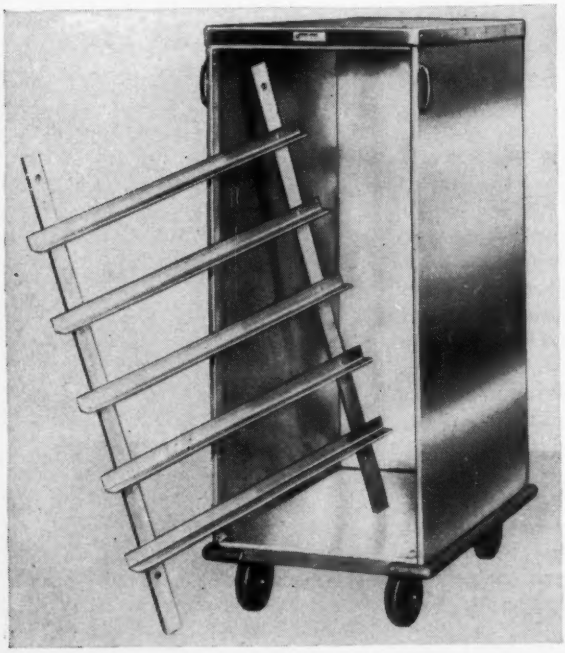
432. Mesh matting

A new grease-resistant mesh matting now is available in white. "Neotex" is useful in sinks, drawers, and cabinets and on drainboards, tables, and trays to prevent breakage and scratching of glassware, porcelain, and delicate instruments. It is an open mesh matting constructed of neoprene thickly coated over an expanded fiber core. The mesh is available in two diamond-shaped patterns—a coarse pattern with approximately 3/8″ openings, in a 3/16″ thickness, and a fine pattern with openings and thickness two-thirds of the coarse pattern. It comes in 26″ width and in lengths up to 50′. It may be readily cut with a scissors. American Mat Corp.



433. Bussing cart

Aluminum bussing cart enclosed on three sides features removable inside angle racks which can be removed by twisting fasteners holding them to the solid sides. Known as Model 113-186, the cart is 50½" high, 21" wide and 30" deep. It is mounted on 5 Neoprene-tired casters. The cart will carry six 18"x26" or 14"x18" trays on angle shelves spaced 7" on center. Dish boxes or tote pans may also be carried. Crescent Metal Products, Inc.



434. Bedpan washer

"Sani-jet" washer empties, washes, and steam-flushes bedpans automatically in one minute. The access door is opened at a touch of the foot pedal, the bedpan or urinal is fitted into a rack, and a starter button begins the automatic operation. When the door has been closed, the washing cycle begins, and the bedpan is automatically tilted so that the contents will be emptied and underlip thoroughly drained. Manual controls may be used in case of a power failure. The unit comes in three models: floor pedestal, recessed, and wall hung. Wilmot Castle Co.

435. Autoclave tape

Preprinted, write-on autoclave tape is treated so that when it is exposed to autoclave conditions, dark brown diagonal markings will automatically appear at ¾" intervals throughout the label. Standard copy designs are available for central service, as well as

for marking and labeling in the laboratory and pharmacy. Custom labels using the hospital's own special nomenclature are available at no additional cost. Labels can be supplied completely printed or with blank areas for write-in. Tape is furnished in 500" rolls in four standard widths. Perforating assures accurate label-length dispensing, and allows rolls to be placed at stations throughout the hospital without the need for various sized dispensers. York Tape Printers, Inc.

436. Packing strips

Adaptic non-adhering packing strips are recommended for surgical and post-surgical use and in normal wound packing. This new type of strip is made of mesh of non-absorbent coated fibers so that the drainage passes through and does not coagulate. This allows packing strip to be removed without pain to patient or damage to tissue. Strips are available in ½", 1" or 2" widths—all four yards long. Hospital Division, Johnson & Johnson.

437. Supply injector

An automatic, stainless-steel supply injector now is available, as optional equipment, on all pedestal-model "Washettes." The new feature permits instant, automatic addition of washing ingredients and is applicable to any of the machine's 28 wash-rinse cycles. Initial supply injection is made by hand for the first segment of the cycle. Supplies for subsequent cycles are placed in the four hoppers, each injecting at the proper time in the cycle. Concentrated solutions are diluted automatically before entering the washer. The injector is located at a convenient height which does not interfere with loading or unloading. Cook Machinery Co.

For further information on any of the items described on these pages, please circle the appropriate number on the postage-paid reply card opposite page 132.

438. Stopper bottle

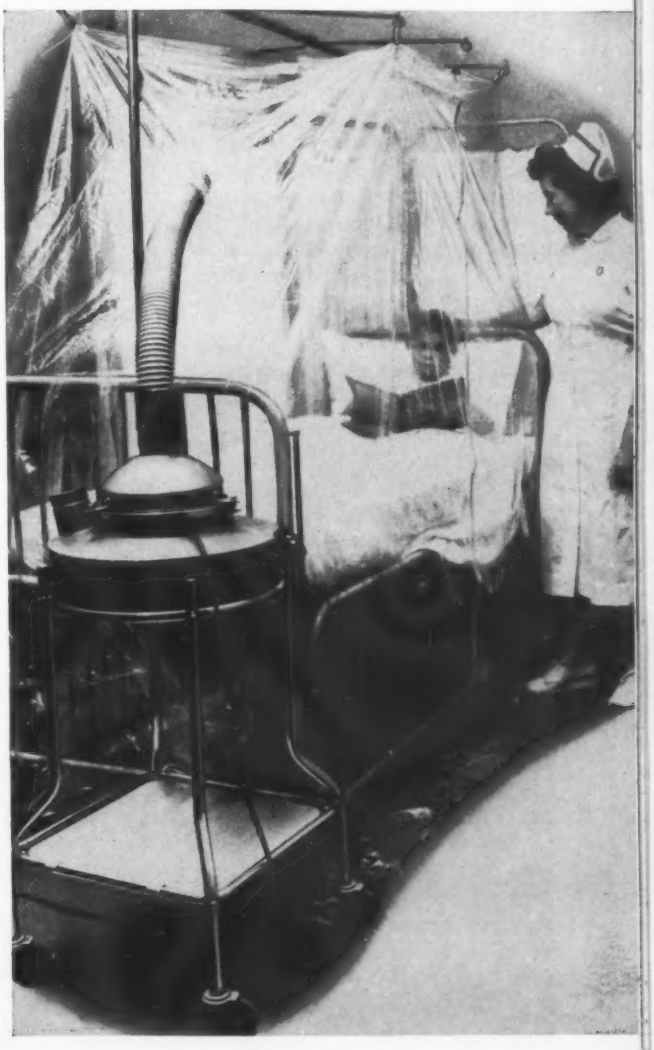
Anti-ozonant has been added to the rubber used in the Tomac folding stopper bottle to deter cracking and checking. Guaranteed against leakage, the bottle is of seamless one-piece construction with a folding closure. It may be used for either ice or hot water and has a two-quart capacity. American Hospital Supply Corp.

439. Cane seat

"Cane Seat," combination cane and chair, offers dual comfort to those with walking problems. When closed, the aluminum serves as a regular lightweight cane, weighing 2 lbs. When opened, it is a chair with a large seating surface covered with vinyl leather. Opens and closes automatically with a flick of the wrist. Legs are rubber-tipped. Popper & Sons, Inc.

440. Humidity canopy

A specially designed canopy which covers the entire bed provides a humidity room at any time. The patient has complete freedom of movement, and humidity from 50 to 100 percent can be attained directly over the bed. One of the special features is the vapor output control which enables the amount of vapor entering the canopy to be regulated for the amount of humidity desired. The Model HA Hospital Humidifier can also be used for introducing moisture into any oxygen canopy or as a room humidifier. Walton Laboratories, Inc.



441. Air purifier

Activated charcoal self-contained circular unit (below) is designed to purify air in individual wards, autopsy, morgue and cancer treating rooms where odors and other irritants are problems. The unit is compact, can be moved from one spot to another, and needs only a 110-volt connection. Activated charcoal traps and holds odors while a blower recirculates clean fresh air. Cabinet is gray. Barneby-Cheney Co.

442. Gas sterilizer

Ben Venue ethylene-oxide sterilizer is designed for use when conventional sterilization methods are not satisfactory. The compact, portable sterilizer requires no power source, uses no heat, and may be used for clinical thermometers, delicate instruments, plastic and rubber items. Instruments up to 14" can be accommodated. A solution of ethylene oxide in a non-flammable, nontoxic, non-reactive inerting agent is contained in the steel Steribulb cartridge. One cartridge is enough for a full chamber of instruments. Contents are sterilized in two hours. American Hospital Supply Corp.

443. Coffee server

A new electric three-piece battery is designed for quick delivery of large quantities of coffee. It is available in two models—two 4-gallon side urns and one 15-gallon hot-water boiler, or two 8-gallon side urns and one 20-gallon boiler. All glass interior gives protection from metal and assures a good brew. Temperature is automatically maintained. Amcoin Corp.

444. Disposable Petri dish

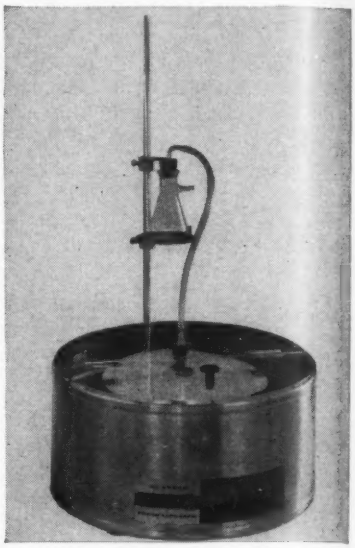
Square disposable Petri dishes provide a 25 percent increase in surface area and great increase in the total streaking length without taking up more space in the incubator. Rounded corners and legs on the bottom of the dish assure a good air circulation during incubation. A specially designed interlock between dishes prevents slipping and sliding when stacked. Scientific Products, American Hospital Supply Corp.

445. Inhalator kit

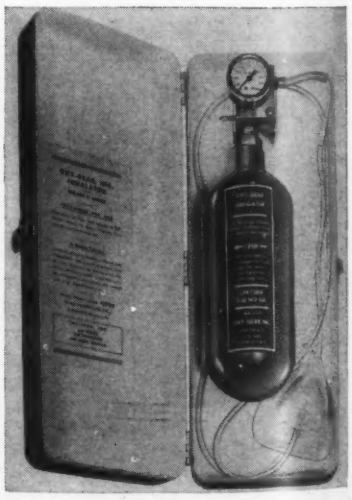
Oxy-Gear portable oxygen inhalator kit has a patented control gauge which makes it impossible to inhale an overdose. It is ready for instant use when mask is placed on the patient's face and cylinder is turned. There are no moving parts, and it is tamperproof. A gauge shows the amount of oxygen remaining in the cylinder. Its metal case measures 16"x 4". The entire unit weighs 9 lbs. Oxy-Gear Sales Co.

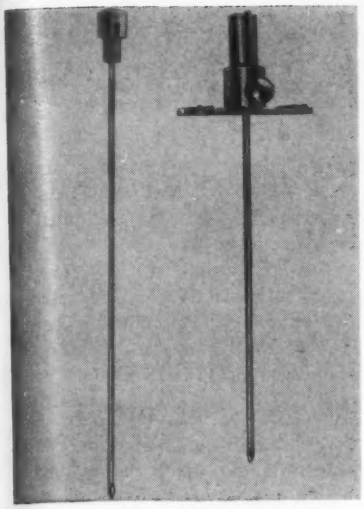
446. Chromatograph

Normal chromatographic separation time can be cut from hours or days to five minutes with the Precision Hi-Speed chromatograph, according to the manufacturer. Separations produced by this unit equal classical resolutions. Centrifugal force is employed to accelerate separation and



to permit multiple samples to be run simultaneously. The equipment permits the flow rate to be held to less than 1 ml. per minute by means of a stainless steel precision-bored capillary. Speeds range from 300 r.p.m. to 1550 r.p.m. Paper up to 35 cm. in diameter may be used. Precision Scientific Co.





447. Epidural needle

New Sierra-Cheng epidural needle is intended for use with the anesthetic agent 2-Chloroprocaine hydrochloride. The needle is blunt-nosed, with an over-all length of 10 cm., of which 8 cm. is graduated in one-centimeter-increments so that penetration of the peridural space can be gauged. A flange, secured by a knurled set-screw, provides a means of grasping the needle while penetration of the supraspinous and interspinous ligaments is accomplished, and can then be moved down the needle until it is in contact with the skin. Sierra Engineering Co.

448. Door control

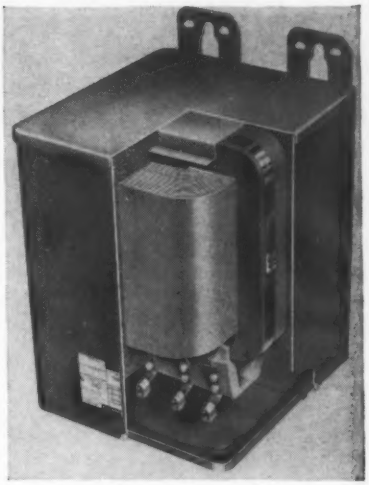
New type thermoswitch provides adjustable temperature control for protection against icing of low temperature and freezer doors. Used with the manufacturer's "Frostop" door, it maintains a temperature above the dew point at point of gasket contact. The temperature control has no on-off switch, thereby eliminating accidental shutoff. Jamison Cold Storage Door Co.

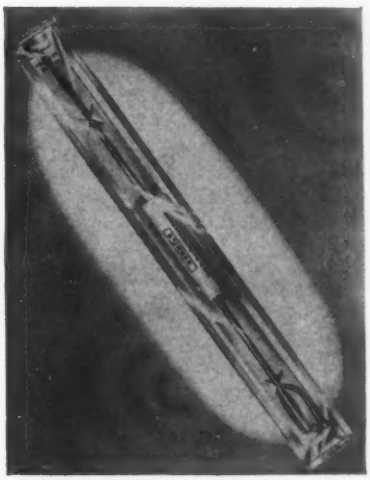
449. Slide dispenser

Pre-cleaned micro-slides now are being packaged in a new "Stand-Rite" box. This dispenser-type container has been developed to insure maximum cleanliness by keeping the slides in a compact vertical box, thus avoiding finger marks on the slide surfaces. J. Melvin Freed Co.

450. Transformer

A new line of dry-type specialty transformers (Type EP) is quieter, lighter, and smaller than previous designs. The core and coils of the new transformers are completely encapsulated in resin with filler so that the sealed unit can be installed in hazardous area. Sealing the units in resin results in sound levels averaging 5 db below NEMA standards. Also, excellent heat transfer properties of the resin and filler have made possible units averaging 55 percent smaller and 14 percent lighter. The transformers are available in ratings from ¼ to 10 kva, 600 volts and below, and can be mounted in any position on wall, floor, or ceiling. Westinghouse Electric Corp.



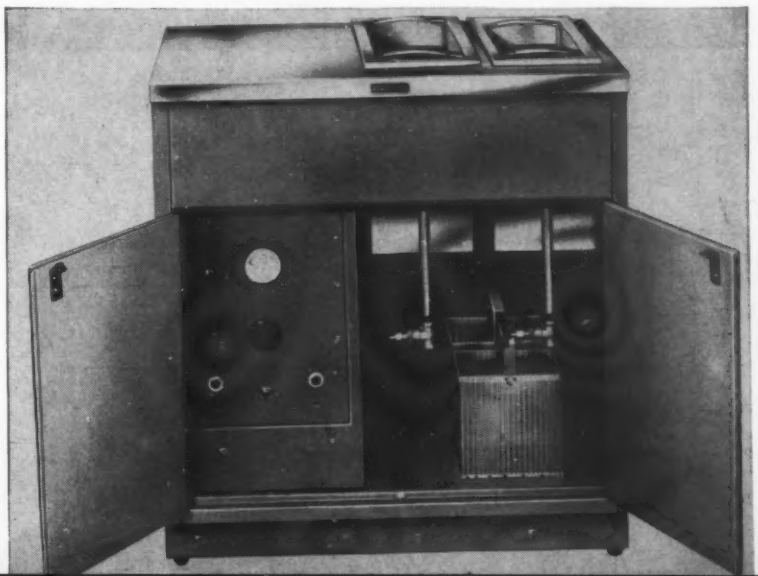


451. Sterile catheters

Pre-packaged and pre-sterilized Bardex Foley catheters are ready for instant use without processing or autoclaving. They are hermetically sealed in a transparent plastic enclosure and sterilized to conform to USP-XU standards. The package is said to be very durable, with a shelf life of up to two years. C. R. Bard, Inc.

452. Uultrasonic cleaner

New, larger model ultrasonic cleaner is built into a furniture-type cabinet and is equipped with a stainless steel working top. The "Labsonic" can be supplied with one tank just for cleaning or with two tanks, one for cleaning and one for rinsing. The tanks are 6½" wide, 16" long, and 10" deep and include stainless steel work baskets. The unit is designed for cleaning hypodermic needles, syringes, surgical instruments, knives, forceps, and all types of mechanical parts. Cabinet is 35" wide, 24" deep and 37" high. Labline, Inc.



NEW LITERATURE

455. Suture catalog

Surgical Suture and Needle Catalog is complete with price list and is cross-indexed according to general product information, types of sutures, and their applications. Also included are descriptions of improved surgical suture-packaging methods and a new, more compact sterile jar. Ohio Chemical & Surgical Equipment Co.

456. Orthopedic equipment catalog

Completely illustrated booklet describes surgical instruments and orthopedic equipment. All specifications and prices are included. Orthopedic Frame Co.

457. Food conveyor

Bulletin contains precise data on Foodveyor, the self-propelled food conveyor, including details on "Touch-N-Go" power drive. S. Blickman, Inc.

458. Paper service

Two booklets and a brochure on matched paper food service are available to hospital administrators. "Tomorrow's Food Service Today" contains comments on paper food service by four administrators. "Hospital Feeding Problems and Solutions" is a cartoon booklet of questions and answers. The brochure shows the paper food service in use. Dixie Cup.

459. Electrophoresis booklet

The "Model R" system for analysis by paper-strip electrophoresis is described in a new 8-page catalog. Also discussed are the uses of paper electrophoresis in analyzing a variety of materials with emphasis on biochemicals such as proteins, lipoproteins, hemoglobins. Spinco Div., Beckman Instruments, Inc.

460. Teaching aid

"Clinical Norms," a compact and comprehensive book, is available to instructors of clinical nursing. The 27-page publication includes hundreds of facts used in evaluations of laboratory tests and clinical diagnoses. Various sections are devoted to the study of the blood, liver function, kidney function, the gastrointestinal tract, the respiratory system, and the nervous, endocrine, and reproductive systems. Two other sections deal with pediatrics and genetics. Lakeside Laboratories, Inc.

461. Emergency lighting

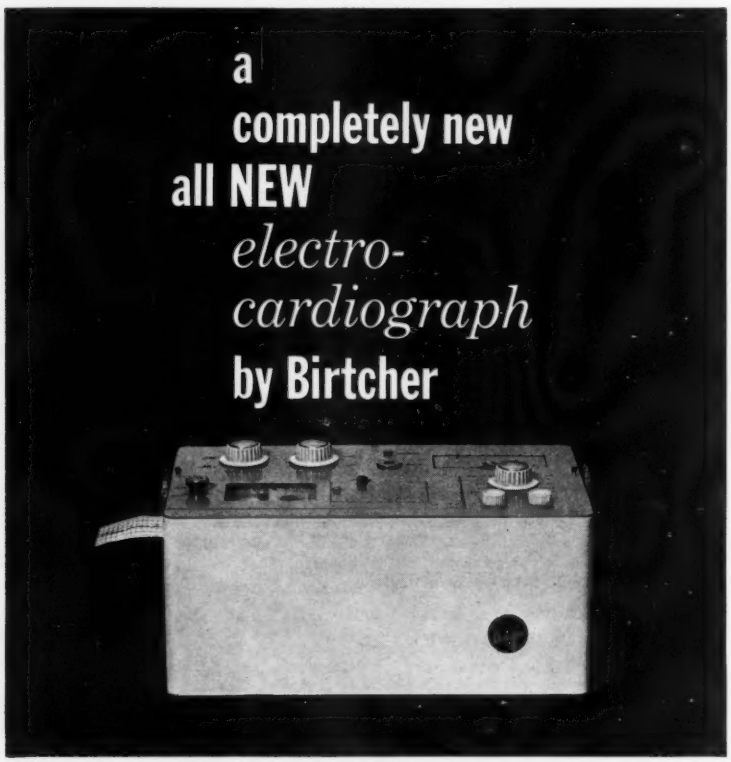
Emergency lighting systems featuring 100 percent electrical supervision are described in this 20-page catalog. Also included are complete information and specifications on components, fixtures and exit signs, and excerpts from the National Electric Code requirements for emergency lighting equipment. The Standard Electric Time Co.

462. Fluid therapy

New 60-page booklet helps the clinician master the basic principles of fluid and electrolyte therapy. Intended for the non-expert, the booklet presents the fundamental concepts of parenteral therapy in a simple form. Abbott Laboratories.

463. Vitamin booklet

Recent clinical literature on research findings on vitamin B-12 is condensed in new non-technical booklet. Titled, "Most Potent Vitamin," the booklet contains reviews on the nutritional and clinical uses of the vitamin and tabulates disorders which the vitamin has been reported to prevent or benefit. Ac-



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cording to the company, this is the first time a non-technical booklet on this subject has been published. Chemical Division, Merck & Co., Inc.

464. Calcium bulletin

The use of Calcium Glucoheptonate for the administration of calcium parenterally is the subject of a 2-page bulletin. Its advantages over calcium gluconate and calcium levulinate are discussed. Pfanstiehl Laboratories, Inc.

465. Flow meter data

Engineering data on differential pressure-type flow meters is the subject of Bulletin F1607. The 22-page illustrated booklet contains basic information and theory on the selection, sizing and installation of the various types of primary devices. A series of tables gives data for flow calculations. The Bristol Co.

466. Glass apparatus

Revised edition of booklet covers the proper care, handling, and calibration of glass volumetric apparatus. Included are sections on specifications, rules for manipulation of the equipment, determination of capacity, and delivery characteristics of burets and pipets. Kimble Glass Co., subsidiary of Owens-Illinois.

467. Hand trucks

"Magnesium Pusharound All-Purpose Hand Trucks" covers the expanded line of magnesium two-wheeled hand trucks and optional equipment. Brooks & Perkins, Inc.

468. Microradiography

"Principles of Microradiography" includes a bibliography of 500 references on microradiography and soft x-ray radiography. One section of the book is devoted to the principles of microradiography and discusses contact and projection technics and x-ray microscopy. Other subjects covered are definition, geometrical blurring, unsharpness, contrast, and soft x-rays. Instrument Division, Philips Electronics, Inc.

469. Sterile tray booklet

The fifth edition of the "Sterile Tray Index for Hospitals" is now available. It describes the makeup and preparation of 103 basic sterile trays prepared in the central supply department. Illustrations of 70 trays are included. Wilmot Castle Co.

470. Prune recipes

Recipes for entrees, salads, vegetables, breads, relishes, and desserts, all featuring prunes, are included in this illustrated piece. Two special features are an institutional buying guide and preparation methods for "plumping" of prunes. Recipes can be clipped and mounted on 5"x8" cards. California Prune Advisory Board.

471. Furniture catalog

New illustrated catalog on hospital and institutional beds and furniture covers entire line, including Multi-Height beds, safety bed sides, heavy-duty mattresses, steel furniture, and hospital and dormitory room groups and accessories. Color chart is included with each 48-page catalog. Inland Bed Co.

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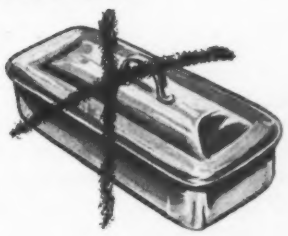

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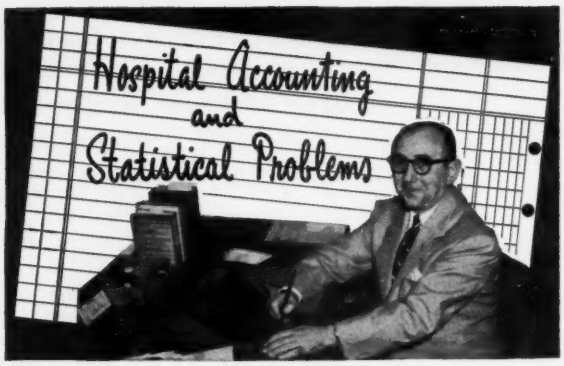

By David H. Tarlow, C.P.A.

Senior Partner, D. H. Tarlow & Co.

Hospital Accountants and Auditors, New York City

Q. We employ a physician on a part-time basis. He maintains his own practice and has his own office. We pay his salary on a quarterly basis. Is this sum subject to Social Security taxes?

A. If the sum is incidental to his general practice, or is less than 50 percent of his income, then such sum is NOT subject to Social Security taxes.

* * *

Q. We would appreciate any suggestions relative to the headings to be used in setting up an aging schedule of accounts receivable. Also, what further analysis would be helpful in setting up reserves for uncollectible accounts based upon such schedules?

A. Accounts are usually aged according to date of patient's discharge from the hospital. We recommend three categories in this area: 30 days, 60 days, and 90 days and over. The subheadings which we find to be of assistance are Blue Cross, Other Insurance, Workmen's Compensation, Approved Welfare Cases, Non-Approved Welfare Cases, and Personal. In some states, in which liens in accident cases are honored for payment prior to settlement with the plaintiff, a further section is established for such items.

When the collectibility of outstanding accounts can be more readily determined, the establishment of the related reserve can be gauged more accurately.

* * *

Q. I have recently taken a position in a county hospital, and I find the accounting terminology somewhat different from that used in other hospitals. One particular item that requires definition is the difference between 'unexpended balance' and 'unencumbered balance' as it refers to the appropriations or approved budget account.

A. The 'unexpended balance' of an appropriations account is that part against which no vouchers have been drawn. It consists of two distinct categories: (1) the encumbrances and (2) the unencumbrances or available balance for disbursement. The "unencumbered balance" reflects that part of the appropriation against which no purchase orders or commitments or other encumbrances have been placed. The unexpended balance is determined by adding the amount of encumbrances to the unencumbered balance in the appropriations account.

* * *

Q. Can you tell us the accepted manner used to determine average length of stay of inpatients?

A. Average length of stay is computed by dividing the total number of patients discharged (including deaths) during a given period of time into the total number of patients days' care given during that time.

* * *

Q Our investment portfolio contains both listed and unlisted securities. Our board of trustees requests interim balance sheets with supporting schedules of the securities held and any changes in these accounts. I am able to obtain the market value of listed securities from the *Wall Street Journal* but do not have a source of information for the "over-the-counter" or unlisted securities. Can you tell me what procedure to follow in order to obtain a fair market value for these unlisted securities?

A. The following agencies should be able to give you the information you require:

1. The brokerage house through which the hospital buys and sells its securities.

2. The commercial bank in which the hospital maintains an account.

In presenting your data, be sure to include the source of your information in a footnote.

* * *

Q. At our 75-bed hospital, which does not have an outpatient department, all outpatient charges are run through the accounts receivables. They are nearly all "cash sales." We use a National Cash Register bookkeeping machine for recording them. A separate ledger card is used for each outpatient. These "cash sale" items clutter up our accounts receivable files and cause difficulty and loss of time in reconciling the detail with the control account. Also, we use a tremendous amount of ledger cards and filing space. How do other hospitals handle these cash items?

A. It is assumed that your hospital maintains a chronological recording of all patients admitted to the hospital or treated in the outpatient department. We would suggest that you purchase, for installation in the outpatient department, a hand-register ticket machine which issues receipts in duplicate. The original could be issued to the patient when he pays for the outpatient service and the duplicate retained in a locked section of the machine for checking by the accounting department when the daily summary of cash receipts is prepared.

The receipt could be checked against the treatment book in the outpatient department, and any unpaid items would be billed the same as other receivables. This would tend to reduce the office billing routine, yet retain the internal control necessary for proper accountability.

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all departments find CAROLAB COTTON BALLS
are handy and convenient to use—
completely free of nibs and wispy ends.
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for sponges in many hospital procedures.
The laboratory and dispensary
find that they save time and money.
Cleaning instruments and equipment,
stopping test tubes, bottles and capsule containers,
are all duties which can be speeded up
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2. Firm, compact construction
3. Made of finely spun, selected long staple cotton
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5. Labor-saving—ready for immediate use after sterilization
6. Actually more economical to use than "home-made" cotton balls or other manufactured balls of same high quality
7. Available in *5* standard sizes:

super	2000 per case
special	2000
large	2000
medium	4000
small	8000

special is same size as large but is almost twice as dense

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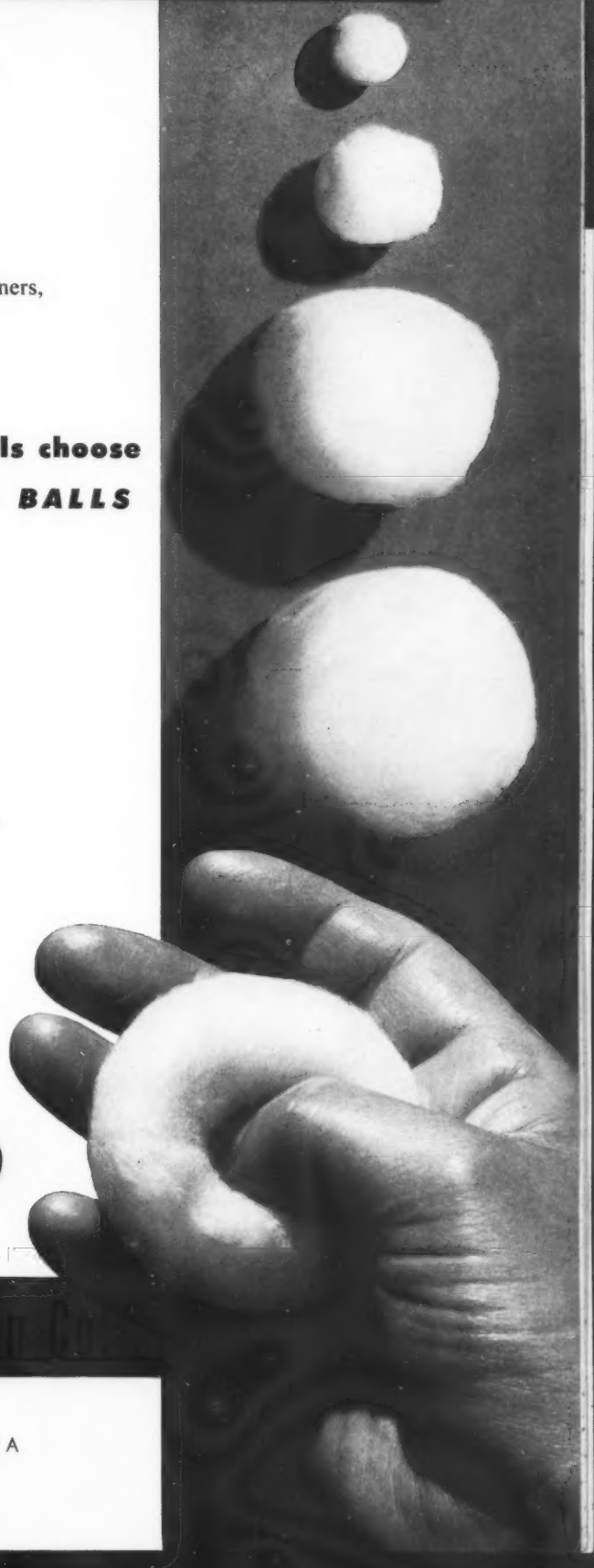

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- BLANKETS
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  - *Ether*
- CURTAINS
  - *curtain material*
- DRAPERY MATERIAL
- LAUNDRY FELT
- LINEN MARKERS
- MATTRESS COVERS
- PIECE GOODS
  - *white and colored*
- PILLOWS
- PILLOW CASES
- PILLOW COVERS
- SHOWER CURTAINS
- SHEETS
  - *BED*
  - *CRIB*
  - *bleached*
  - *unbleached*
  - *percale*
  - *contour*
- SHEETING
  - *bleached*
  - *unbleached*
  - *jade green*
- TAPE
- TABLE LINENS
  - *tablecloths*
  - *napkins*
  - *tray covers*
- TICKING
- TOWELS
  - *terry*
  - *huck*
  - *absorbent*
  - *kitchen*
  - *name woven*
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Personally Speaking

Edythe L. Alexander, R.N. — is now director of nursing, Lutheran Medical Center, Brooklyn, N.Y. Recently she has been an associate editor, *American Journal of Nursing*. Previously she was operating room supervisor and assistant director of nursing, Roosevelt Hospital, New York City.

Louis R. Armstrong—has become administrator, Oak Hill (O.) Hospital, succeeding **Louis J. Jindra, M.D.**, who returned to private practice.

Robert L. Aronson—has been appointed administrator, St. John's Lutheran Hospital, Libby, Mont. He has been acting administrator since the resignation of **Henry A. Kallio** two months ago.

J. Leo Ash—has been appointed administrator, Fall River (Mass.) General Hospital, succeeding **Leroy W. Hammett.** Mr. Ash was formerly administrator, St. Mary's Hospital, Leonardtown, Md.

Albert B. Bell—has been named purchasing agent, Our Lady of Lourdes Hospital, Pasco, Wash.

Robert O. Bruce — has been named the first administrator of Charlotte Hospital, Punta Gorda, Fla. Previously administration duties were handled by the chief bookkeeper and the nursing superintendent. Mr. Bruce was formerly business manager, Lee Memorial Hospital, Fort Myers, Fla.

Joseph Carmical—previously administrator, Bradley County Hospital, Warren, Ark., is now head of the new Forrest Memorial Hospital, Forrest City, Ark.

Jane M. Carney, R.N.—has been appointed to Bakersfield (Calif.) College to help develop the school's associate degree program for registered nurses. She was formerly on the faculty of St. Joseph's Hospital, Baltimore.

Also working on the college's program will be **Freda Fry, R.N.**, recently a faculty member of Loretto Heights College, Denver.

Samuel Feder—is the new business manager of the St. Louis (Mo.) State Training School.

Winners of the 1957 Albert D. Lasker awards for outstanding contributions in the field of science pose with Mrs. Lasker, who made the presentations at the Ambassador Hotel, New York City, in November. Cited for their research work are (l. to r.): Rustom Jal Vakil, M.D., King Edward Memorial Hospital, Bombay, India; Henri Laborit, M.D., director, Experimental and Clinical Research on Artificial Hibernation, Army Research Center, General Military Hospital, Paris, France; Pierre Deniker, M.D., formerly clinical director, Psychiatric Hospital, Paris, France; and Heinz E. Lehmann, M.D., clinical director, Verdun Protestant Hospital, Montreal, Que., Canada.

Janet Froome, R. N.—formerly director, school of nursing, Ball Memorial Hospital, Muncie, Ind., has been appointed assistant professor in charge of clinical instruction, University of Cincinnati (O.) College of Nursing.

Clyde H. Gruchow — has become administrator, Logan County Hospital, Oakley, Kan. He previously was associated with the University of California Medical Center, in a research capacity.

Donald E. Hansen—has been appointed administrator, Bismarck (N. Dak.) Hospital, at which he was formerly an administrative resident.

Virgina Harrell, R. N. — has retired as director, nursing service and education, Greenwich (Conn.) Hospital. **Catherine T. Mulcahy, R.N.**, succeeds her as acting director, nursing education, and **Patricia M. Fogg, R.N.**, is acting director, nursing service.

John J. Hayes — has been appointed associate administrator, St. Mary's Infirmary, Galveston, Tex. He was formerly executive co-ordinator.

Rose B. Hayes, R.N.—has been appointed assistant professor, Catholic University, Washington, D.C. She has served as instructor and assistant professor of psychiatric nursing, University of Illinois, Chicago, and took part in the Catholic University career teacher program in psychiatric nursing sponsored by the U.S. Public Health Service.

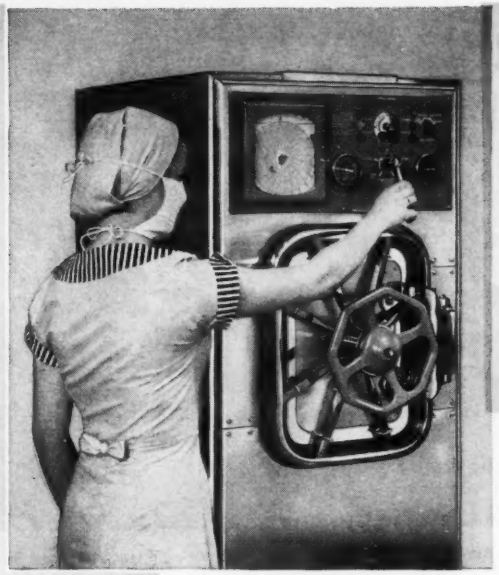
Nicholas A. Herrig—has become assistant administrator, St. Anthony's Hospital, Morrilton, Ark. He was formerly assistant administrator, Santa Rosa Hospital, San Antonio, Tex.

Mrs. Phyllis Hitzemann—has been named administrator, Doctors Hospital, Omaha, Nebr., succeeding **Byron Whitford,** who resigned. Mrs. Hitzemann was formerly administrative secretary and purchasing agent, Lutheran Hospital, Omaha.

Samuel T. Johnson—has resigned as administrator, Grafton (W. Va.) City Hospital to become head of Community Osteopathic Hospital, Orrville, O.

R. L. Kledzik—has been named administrator, Clay County Me-

(Continued on page 71)



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12" x 16" x 24"

For All Instrument Sterilizing Procedures:

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- Routine
- Pre-prepared wrapped instruments

Major Advantages

SQUARE: 12" x 16" x 24" chamber provides 50% more useful space — takes three instrument trays, or basins and other utensils.

AUTOMATIC: Set-and-forget Cyclomatic Control ends doubts; assures thorough sterilization even under emergency stress.

FAST: Reaches 270° in 45 seconds; holds for 3 minutes; exhausts and dries in 60 seconds for complete emergency cycle of less than 5 minutes.

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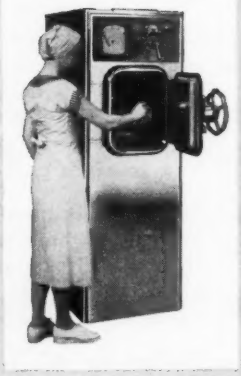
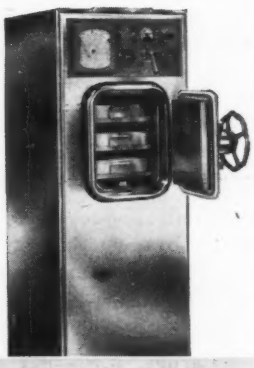


12" x 16" x 24" square chamber is large enough for basins and utensils.



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PERSONALLY SPEAKING

(Continued from page 69)

morial Hospital, now under construction in Green Cove Springs, Fla. A retired Navy officer, Mr. Kledzik has been administrator, Everglades Memorial Hospital, Pahokee, Fla., for the past two years.

Steve Landregan — has been appointed assistant to the administrator and director of public relations, St. Paul's Hospital, Dallas, Tex.

Mary T. Lawless, R. N.—has retired as assistant executive director, Nassau Hospital, Mineola, N.Y. She had been associated with the hospital for 32 years.

Stephen A. Lott —has been appointed director, Hurley Hospital, Flint, Mich., succeeding **Edward W. Gilgan.** Mr. Lott had been assistant director for five months, and previously was administrator, Methodist Hospital, Pikesville, Ky.

Raymond J. Lowe—has been appointed administrative assistant, Jefferson Medical College Hospital, Philadelphia.

Elmo H. Lund—formerly of Salt Lake City, Utah, has been named administrator, Ellis Fischel State Cancer Hospital, Columbia, Mo.

Mrs. Louise Meeker — has been appointed executive housekeeper, Methodist Hospital of Indiana, Indianapolis, succeeding **Mrs. Winona Ballantyne,** who retired.

W. T. Middlebrook, Jr.—has become associate director of the American Hospital Association's hospital counseling program. He was formerly assistant administrator, Hibbing (Minn.) General Hospital.

Agnes C. Moloney, R.N.—has been named associate director of nursing service, St. Francis Hospital, Evanston, Ill. She was formerly a staff member, VA Hospital, Dwight, Ill.

Assisting her will be **Mrs. Marguerite Skinner** who was formerly operating room supervisor, St. Mary's Hospital and Jewish Hospital, both in Cincinnati, O., and, clinical instructor in operating room procedure, in New Orleans and Chicago.

Irma W. Nickerson, R.N. — has been appointed director, nursing services, University of California Hospital, San Francisco. She succeeds **Mrs. Harriet S. Phelps, R.N.,** who retired after 32 years.

Malcom W. Reynolds, D.S.C.—has been appointed administrator, Newport (Wash.) Community Hospital.

William B. Schaffrath—has been appointed hospital advisor in Formosa for the International Co-operation Administration of the U. S. State Department. He was formerly adminis rator, Menorah Medical Center, Kansas City, Mo.

Sister Cyril, R.N. — has been named administrator, Glockner Hospital and Penrose Cancer Hospital, Colorado Springs, Colo. Sister Cyril was formerly administrator, Good Samaritan Hospital, Dayton, O.

Sister M. Loretto—has been appointed administrator, St. Vincent's Hospital, Vancouver, B.C., Canada, succeeding **Sister Mary Ruth.**

Charles Smith has been appointed superintendent, Malheur Memorial Hospital, Nyssa, Ore., succeeding **John G. O'Toole,** who has become administrator of the new Idaho Rehabilitation Center, Boise.

Ada I. Snyder, R.N.—director of nursing, Tuomey Hospital, Sumter, S.C., for almost 27 years, retired January 31. No successor has been appointed.

Walter Treanor, M.D.—has been appointed joint professional chief of the physical therapy department, St. Francis Memorial Hospital, San Francisco, with **Gregory Bard, M.D.** They will also be joint chiefs of the occupational therapy department.

At the same hospital, **Forrest Johnson** has been appointed chief physical therapist, succeeding **Fred Aaron,** who resigned.

Mrs. Benjamin Walpole, R.N.—formerly administrator and director of nursing, Myers Community Hospital, Sodus, N.Y., has become administrator, Tri-County Memorial Hospital, Gowanda, N.Y., succeeding **Elizabeth J. Deckert** who resigned in July.

Helen Watters, R.N,—has been appointed director of nursing services at the University of Washington teaching hospital, scheduled to open early in 1959.

Harriet R. Kossove—has been appointed director of the hospital's dietary department. Both have joined the University's staff.

S. T. Whitworth—has become administrator, Ouachita General Hospital, Hot Springs National Park, Ark.

(Continued on page 123)

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The Book Corner

Prospective Nursing Students

THE PERSON AS A NURSE. By Florence C. Kemp, R.N. New York: The Macmillan Co. Second Edition. 1957. 240 pp. $4.

An orientation to nursing as a career, the first edition of this book has been used as a text in "professional adjustments" for the past five years. In the second edition, new material has been added and existing material revised and reorganized following student evaluation.

The book, which is also useful to students enrolled in nursing programs, is divided into four units. The first unit, "Preparation for Living," discusses the choosing of nursing as a career; "The Person as a Nurse," the second unit, covers psychological and philosophical aspects of nursing; the third unit, "Professions," offers legal and professional information on nursing; and "The Patient as a Person," the fourth unit, outlines relationships between patient and nurse.

Suggested readings are appended to each chapter, and exercises to extend concepts are proposed.

Several charts are included, as well as photos of various activities concerned with nursing.

Pamphlets Issued on Radiation, Cell Examination in Cancer

Two Public Affairs Pamphlets have recently been issued. No. 252 is "Cell Examination—New Hope in Cancer," by Charles S. Cameron, M.D. No. 256 is "Effects of Radiation and Fallout," by James F. Crow, Ph.D.

The first pamphlet emphasizes the importance of an annual cytologic test for uterine cancer for all women over 35. It also points out the necessity of enlarging facilities for cytologic examination and the need for more trained technologists.

An appraisal of the effect of atomic radiation and fallout on present and future generations is made in the second pamphlet. Included is a discussion on the nature of radiation and its effects on the body.

Pamphlets are 25¢ each, and are available from the Public Affairs Committee, 22 East 38th Street, New York, N.Y.

Chemopsychiatric Drugs

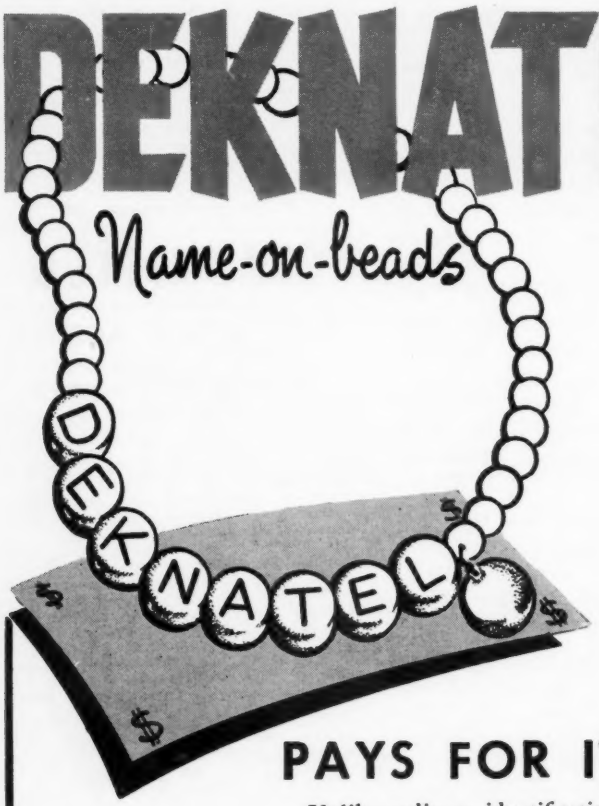
DRUGS AND THE MIND. By Robert S. deRopp, Ph.D. New York: St. Martin's Press. 1957. 308 pp. $4.50.

This book brings the general reader up to date on important modern discoveries about new and ancient drugs and their potentials for good and evil. It deals with the classes of drugs which, in one way or another, influence the mind or emotions of man.

The author, a biochemist, was formerly associated with the Rockefeller Institute as a visiting researcher.

In his opening chapter, Dr. deRopp describes these agents as

(Continued on page 128)



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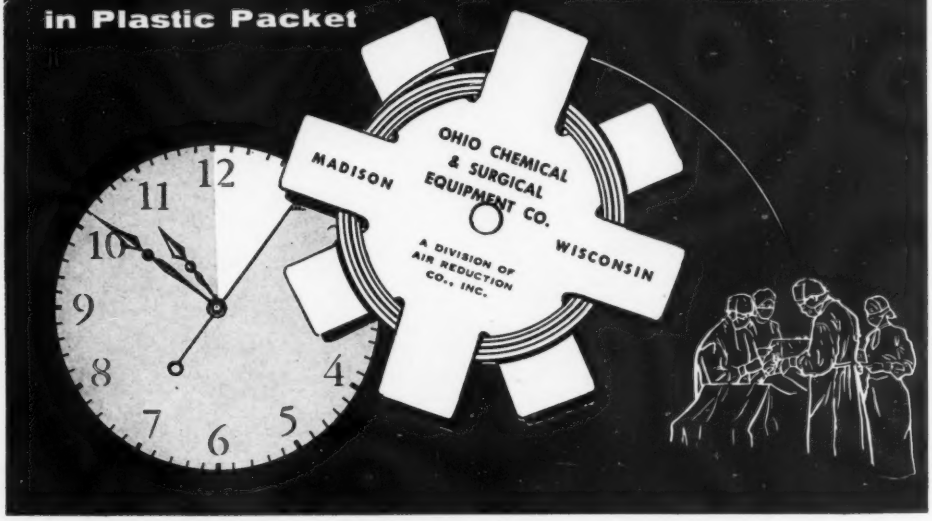

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Flame Photometry

By Alex Bews*

• The flame photometer is a useful adjunct to the laboratory service of any hospital, regardless of size. The physician can properly care for the patient suffering from radical changes in electrolyte metabolism only if he receives quick and accurate reports from the laboratory. The flame photometer facilitates these reports greatly.

Accurate electrolyte studies are becoming increasingly important in treating severe burns, nephritis, diabetic acidosis, infantile diarrhea, and many other clinical conditions. A so-called electrolyte panel comprises studies of sodium, potassium, chloride, and carbon dioxide combining power and content.

Since such a panel does not always reflect the patient's true metabolic balance, it may be necessary, in some cases, to obtain a more complete picture of the composition of the extracellular space. To the electrolyte panel, therefore, may be added determinations of blood pH, total plasma protein and albumin-globulin ratio, and serum calcium, magnesium, and phosphorus.

This article primarily concerns the use of flame photometry in the estimation of the serum sodium and potassium. The gravimetric analysis of these elements is much too time-consuming for clinical use. Flame analysis, however, provides a fast and efficient tool for the clinical laboratory.

The flame photometer enables rapid, quantitative determination of metals in solution. When metals are atomized from solution, the light emitted from each metal at its specific wavelength when burned in a flame, is directly proportional to its concentration.

Since the intensity of light emitted by each element depends primarily on the concentration of its atoms in the flame at any given instant, a measurement of the light intensity makes possible its quantitative determination.

INTERFERENCE

The term "interference" in flame photometry denotes the effect, on the light emission of the element being analyzed, of foreign elements or materials in the solution. Interference arises from many causes, such as a change of rate in the atomization, effects of flame temperature, presence of acids, alcohols, bases, or other metallic elements, changes in viscosity, and similar variations.

Potassium in a solution of dilute serum which is being analyzed for sodium, will exert a depressive action on the spectral emission of the sodium line.

For example, in a solution containing a proportion of roughly 10 parts per million sodium, and 5,000 parts per million potassium, the potassium exerts a depressive action of 0.5 parts per million sodium.

Admittedly, in a dilute serum solution containing 140 mEq./liter

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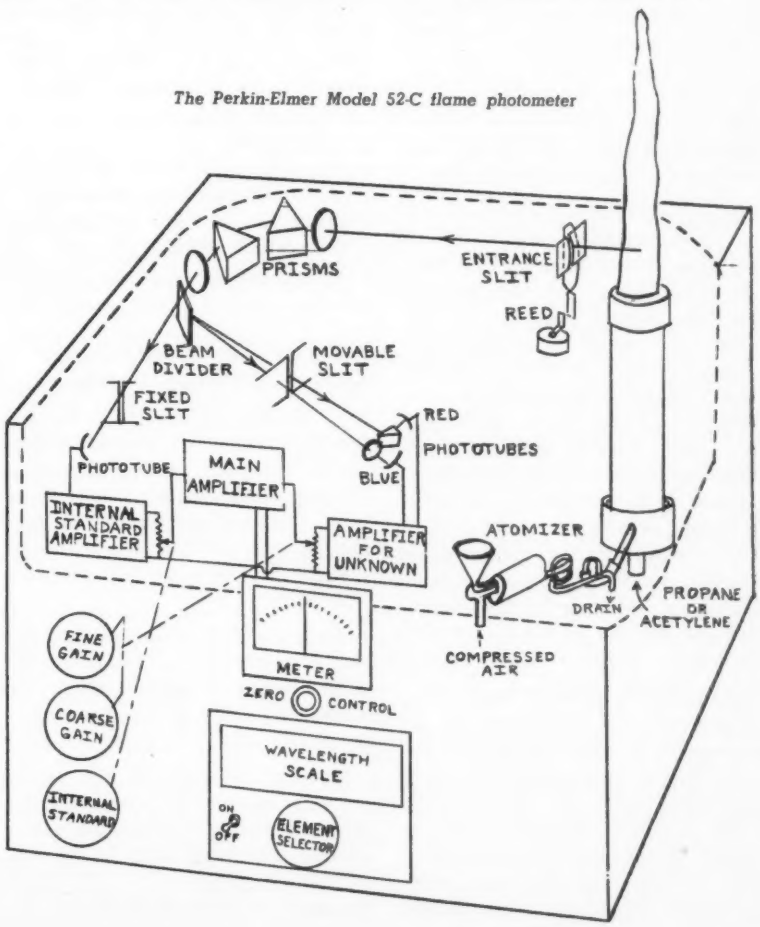
The Perkin-Elmer Model 52-C flame photometer



*Biochemist, St. Joseph's Hospital, Milwaukee, Wis.

sodium, and 4.5 mEq./liter potassium, the depressive action of the potassium is very small. However, to minimize this effect, we prefer to use the "internal standard" method of adding lithium metal.

The internal standard method consists of adding an element not present in the solution. In the case of the Perkin-Elmer photometer, the element used is lithium. This element is used in each standard, and in the unknown. The amount of light emitted by the unknown element is measured on one phototube, while that emitted by a constant amount of internal standard element is measured on a second phototube. One phototube is balanced against the other and the ratio of one to the other is a measure of the concentration of the unknown.

——SEVERAL MAKES AVAILABLE

Several makes of flame photometers are available. They differ in price and instrumentation but employ the same principle. Among those in most common use are the Beckman flame photometer attachment for the Model B spectrophotometer, and the Perkin-Elmer and the Coleman flame photometers.

Each instrument has advantages and disadvantages and must be evaluated with a view to such factors as cost and amount of use. Each instrument operates on the following principle: A solution containing a metal is forced through a small aperture beyond which it is vaporized or nebulized; the vapor then passes over a very hot flame which heats the element; the light emitted by the element is reflected to a phototube and measured at a specific wave length as reflected by a change in the galvanometer sensitivity, the change being proportional to the concentration of the element.

The Perkin-Elmer flame photometer is a relatively expensive instrument, costing around $1,500 to $1,800. It is extremely sensitive to external light, and changes such as in amount of sunlight make it difficult to use near an open window. It must be kept free from draughts, it produces a large amount of heat, which is a disadvantage in hot weather, and it contains a vaporizer funnel which must be kept scrupulously clean. The main advantage of this machine is that it employs the internal standard method and results are reproducible if standards are used with each analysis.

For macro methods employing at least 15 ml. of solution, results are satisfactory. For a smaller volume, a micro atomizer must be used.

The Beckman attachment costs around $1,600 and can operate with as small a volume as 2 ml. of solution. This is particularly useful for micro procedures and for analyses in which the total volume must necessarily be small.

The small differences in detectable light, and the sharpness of the wave length make this machine unmatched for research.

Two disadvantages are the following points: 1. It utilizes a vaporizing principle, whereby a needle dips down into the liquid to be vaporized. Successful operation of this principle is dependent on the surface tension and viscosity of the fluid. If an acid is used to suspend the element being analyzed, for example, perchloric acid, used in the estimation of calcium, the needle tends to become corroded, thus altering the viscosity and surface tension of the fluid.

2. The flame produces a large amount of heat and since the burner coils are exposed, there is a possibility of the operator's burning himself.

In most cases, a flame photometer will pay for itself within the first year or sooner. For smaller hospitals, however, the more expensive models may be impractical.

The Coleman flame photometer promises to be a most useful clinical tool. Its low cost, around $500; the ease with which it can be attached to the circuit of the Coleman Junior spectrophotometer; its rugged construction; the small amount of heat it produces; and its ability to utilize the city gas supply, all make it ideal for the smaller laboratory.

——"DRIFT" IS PROBLEM

The "drift" which sometimes occurs on this instrument's galvanometer presents a problem which is not entirely overcome by the use of storage batteries or a constant voltage transformer. This instrument is available with an electronic power supply which overcomes the problem and, although more expensive, is probably worth the extra cost.

If the available gas pressure has an energy rating of less than 800 B.T.U., a booster pump will be needed for this instrument.

All flame photometers employ compressed air or oxygen, and either coal gas, propane, or acetylene.

Both propane and acetylene are potentially dangerous and should be used with care. It is well to check with the city fire department and with the hospital fire committee before installing either gas. The gas cylinders should be placed on the exterior of the building, if possible, and should be protected from extremes of temperature. Reducing valves can be obtained for oxygen, propane, and acetylene supply lines.

When using propane or acetylene, it is important to turn on the oxygen supply *before* opening the fuel supply. When the analysis is completed, the fuel supply should be shut off and the gas allowed to burn out before the air or oxygen is turned off.

Fellowships Offered for Study in Tissue Culture

The National Foundation for Infantile Paralysis is offering fellowships for short courses in tissue culture. Post-doctoral investigators, teachers, graduate students and experienced laboratory personnel with a baccalaureate degree are eligible.

Funds will be awarded for the period necessary to complete the course which is usually about six weeks. Fellowships may be used for study only in formal courses.

Further information and application forms may be obtained from the Division of Professional Education, National Foundation for Infantile Paralysis, 301 E. 42nd Street, New York 17, N.Y.

The cardinal safety rule is: Oxygen *on first* and *off last*.

Many hospitals are equipped with compressed air. Since condensation tends to accumulate in the pipes, the compressed air should be "blown off" or freed from water at least once a week.

METHODS IMPORTANT

Most flame photometers have a trap to facilitate vaporizing. The bottle or receptacle used to collect water from the trap of the photometer should be emptied periodically, to prevent water from being sucked into the trap.

Water for dilution of serum and standards should be glass-distilled. Hospitals not possessing such equipment can obtain plastic squeeze bottles containing an ion exchange resin which will deliver water of the desired purity. Standard solutions can be stored in polyethylene squeeze bottles of 250 ml. capacity.

All glassware used should be kept scrupulously clean and free from dust. A detergent of low ionic content should be used for washing.

As receptacles for diluting serum samples, we use nonprotein nitrogen tubes which are washed in detergent and water, single and then double distilled. Pipettes and other glassware are reserved for use with electrolytes only. Contents of tubes are mixed by placing a disposable paper cup over the top of the tube. The cup is thrown away after use.

Serum drawn from clotted blood must be free from any hemolysis.

For estimation of potassium, using the internal standard method, 1 ml. of serum and 0.5 ml. of stock lithium solution are diluted to 50 ml. with water.

For the estimation of sodium, with this method, 0.5 ml. of serum and 0.5 ml. of stock lithium solution are diluted to 50 ml. with water.

On rare occasions when the unknown serum is found to possess greater than 7 mEq./liter of potassium, the test can be re-run using the solution that was prepared for the sodium estimation and multiplying the photometric result by 2.

There is no set dilution for urine samples because the sodium and potassium content varies widely. If the proportion of lithium remains constant at 1/100, the dilutions of the urine can be varied between 1/2, 1/10, 1/100, 1/1000 until the concentration falls within the range of the sodium and potassium standards.

Micro analysis for sodium and potassium in newborns can be performed using the Natelson technic for collecting blood. Dilutions, again using the internal standard method, are these:

Sodium:

1. Place 0.1 ml. serum in a tube graduated at 10 ml.
2. Add 0.1 ml. stock lithium solution.
3. Dilute to 10 ml. with water.

Potassium:

1. Place 0.2 ml. serum in a tube graduated at 10 ml.
2. Add 0.1 ml. stock lithium solution.
3. Dilute to 10 ml. with water.

Standard solutions are prepared containing 160, 150, 140, 130, and 120 milliequivalents of sodium, and 7.0, 6.0, 5.5, 5.0, 4.5, 4.0, 3.5, and 3.0 milliequivalents of potassium.

Sodium is added to the potassium standard solution to allow for background interference presented by the sodium in the unknown.

The standard sodium, potassium, and lithium stock solutions are obtainable commercially in concentrations of one percent (10,000 parts per million) and 0.1 percent (1,000 parts per million).

The accompanying tables show the proportions for preparing sodium and potassium standards, which are used for comparison with the unknown in the serum being analyzed. When any one of these standards is compared, in the flame photometer, with the diluted serum, the unknown concentration of sodium or potassium can be interpolated.

Potassium Standards
(For 500 ml. of solution)

Potassium in sample (in mEq./liter)	Potassium stock 0.1 percent solution* or stock 1 percent† diluted to 0.1 percent (in ml.)	Sodium stock 0.1 percent solution* or stock 1 percent† diluted to 0.1 percent (in ml.)	Lithium stock 1 percent solution† (in ml.)
7.0	2.74	32.25	5
6.0	2.35	32.25	5
5.5	2.15	32.25	5
5.0	1.95	32.25	5
4.5	1.76	32.25	5
4.0	1.56	32.25	5
3.5	1.37	32.25	5
3.0	1.17	32.25	5

Sodium Standards
(For 500 ml. of solution)

Sodium in sample (in mEq./liter)	Sodium stock 0.1 percent solution* (in ml.)	Lithium stock 1 percent solution† (in ml.)
160	18.40	5
150	17.25	5
140	16.10	5
130	14.95	5
120	13.80	5

*0.1 percent solution contains 1,000 parts per million
†1 percent solution contains 10,000 parts per million

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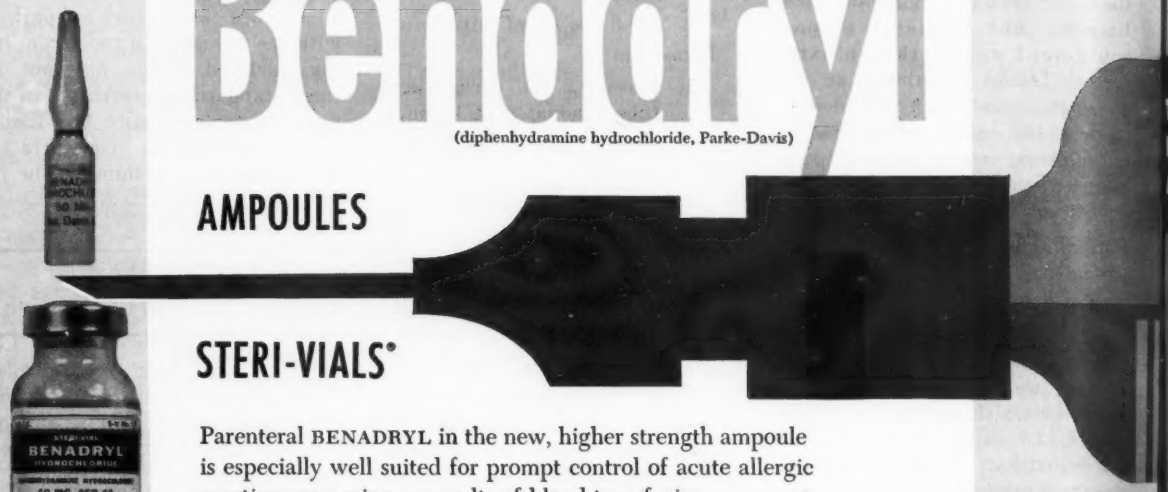

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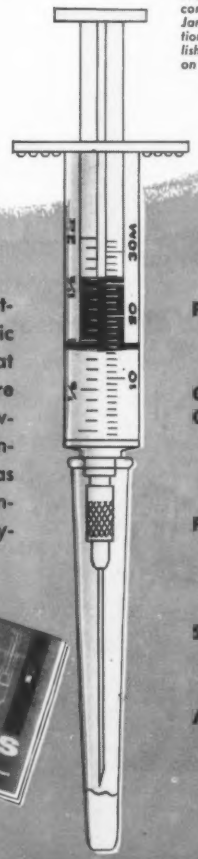
NOTE: The above list is complete as of press date, Jan. 2. Names of additional distributors, established since Jan. 2, sent on request.



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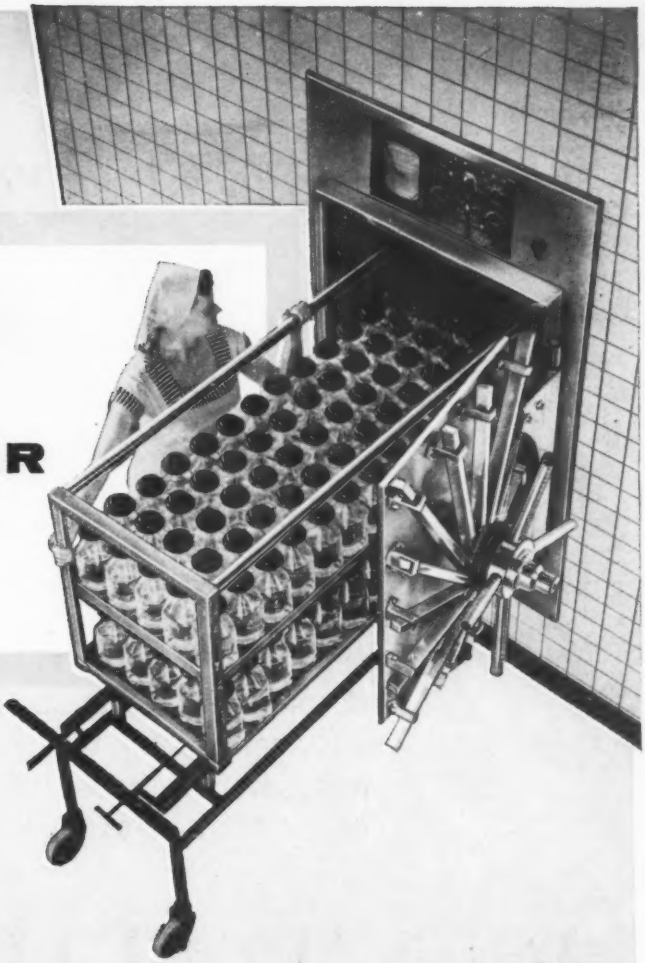

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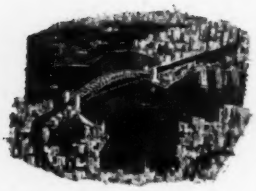

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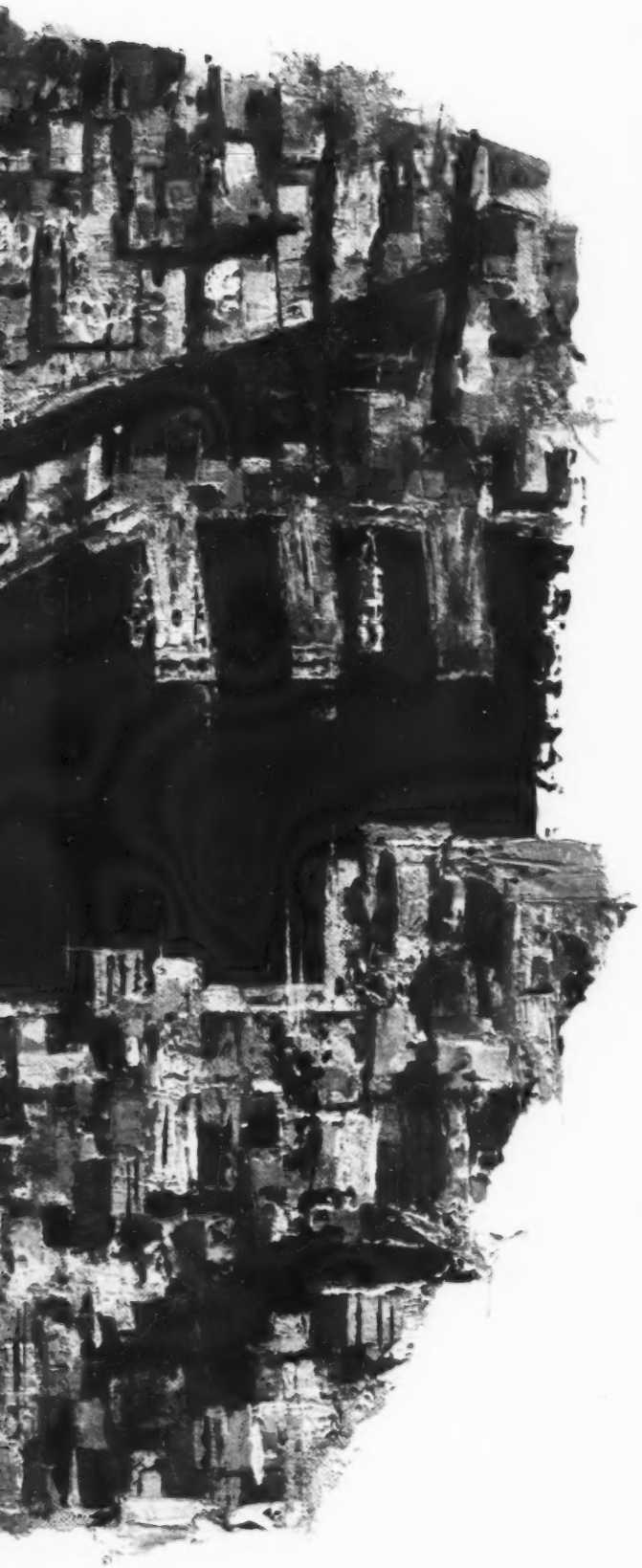

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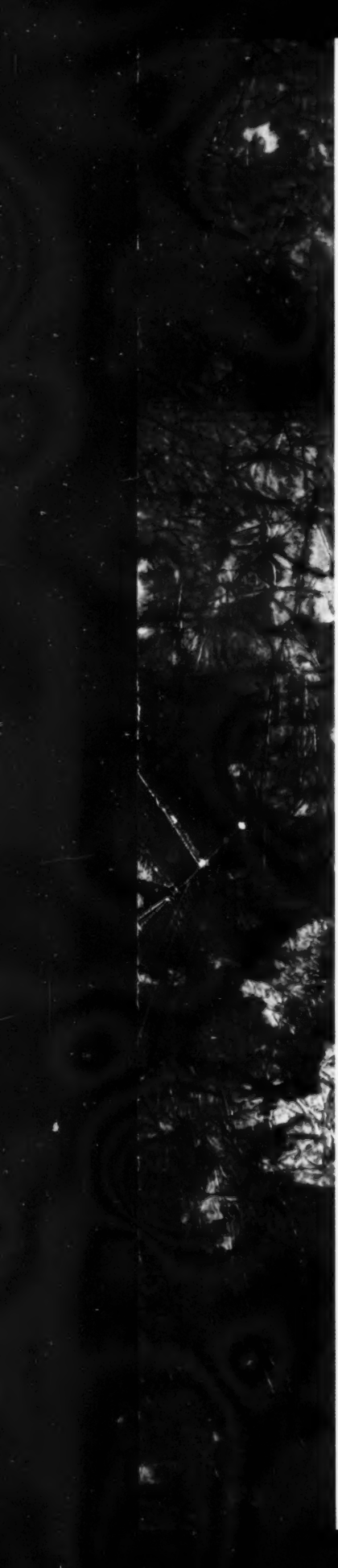

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Pediatrics

An Evaluation of Standards For the Hospital Care Of Premature Infants

By Rowland V. Rider, Sc.D., Paul A. Harper, M.D., Hilda Knobloch, M.D., and Sara E. Fetter, R.N., C.N.M.**

• The present report is concerned with the evaluation of standards for hospital care of premature babies and is based on a study of the 4,700 premature infants born in Maryland in 1952. The standards assessed are those listed in the manual prepared by the Committee on Fetus and Newborn of the American Academy of Pediatrics entitled "Standards and Recommendations for Hospital Care of Newborn Infants," October, 1948.[1] The 1954 edition contains only a few changes, most of which are of a minor nature except for those about the administration of oxygen. Evaluation is made by means of a study designed to test the hypothesis that there is a direct relationship between degree of hospital conformity with the recommendations and neonatal survival rates.

Standards for hospital care of premature infants have been developed item by item over several decades and are largely the consensus of individuals with wide experience in the care of newborn infants. Very few of these items have been the result of controlled clinical trials such as have recently been done on the question of how much oxygen or how much vitamin K should be given to premature babies.

An evaluation of current standards item by item by such controlled clinical trials may be desirable in theory; however, when one considers the great number of individual items and when one reviews the great amount of effort and expense required to settle the one question of oxygen referred to above, one is forced to conclude that many of the itemized standards would be extremely difficult to evaluate in this rigorous manner. One alternative is to evaluate the group of standards as a whole, and such a study is the subject of this report.

METHOD OF EVALUATION

A premature infant was defined as an infant weighing less than 2,501 Gm. (5.5 lb.) at birth. It was estimated that a single year's experience in hospitals throughout Maryland would be sufficient. The study was planned to obtain two sets of data: (1) information concerning the hospitals which would permit rating them as to their conformity to the standards, and (2) observations about the premature infants cared for by the hospitals which would not only answer the question of survival but would also allow proper consideration to be given to differences in the kinds of population served by the hospitals.

Rating the Hospitals. Continuous observation of the practices of each hospital throughout the study year —and this done without influencing hospital behavior —would provide the ideal data for judging the extent to which the hospitals conformed to standards. As the closest approximation to this that seemed practicable, two surveys of the hospitals were made, one at the beginning of the study year and one at the close. Thus changes during the year, other than temporary changes between the surveys, would be recognized.

The surveys were conducted by a team of two of us, one a pediatrician (H. K.) and the other a certified nurse-midwife (S. E. F.), both experienced in making observations on premature nursery care. A questionnaire was developed to record the observations and to facilitate scoring. It comprised approximately 90 items which were chosen from among the standards for care of premature babies listed in the manual described above.

The selection was made by the study staff after consultation with a number of authorities in the fields of infant care and obstetrics. The aim in making the selection was to provide in questionnaire form a fairly complete summary of the standards. As far as possible each question was phrased to permit a yes or no answer, although some questions required a graded response or a simple listing or description of the pertinent facts.

The final step in defining the criteria for measuring hospital conformity to standards was determining a system of scoring the questionnaires so that the hospitals could be ranked. The method used was to divide the questions into six groups of related items, assigning to each group a weight believed to indicate the group's relative importance. The sum of the weights was made equal to 100. The following weighing was used:

1. Labor, delivery, transit to nursery, 19.
2. Nursery space, facilities, practices, 19.

(Continued on next page)

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**At the time of the study described in the article, the authors were all from the Division of Maternal and Child Health, School of Hygiene and Public Health, Johns Hopkins University. Dr. Knobloch is now at the Ohio State University College of Medicine.

3. Medical staff and policies, facilities for transfusion and laboratory examinations, 19.
4. Nursing staff and policies, 19.
5. Records, 14.
6. Postdischarge policies, 10.

Items included in each of the above groups were assigned weights so that the total of the weights within a group equaled the assigned group weight. The aim here also was to have the individual item scores reflect the relative importance of the items within the specific groups.

The decisions on the scoring were made prior to the surveys, except for a few judged inadequate on the basis of early experience. In these instances the items' maximum scores were not changed but partial scores were defined. Detailed definitions and instructions were prepared as an aid to uniform interpretation of the questions and their scoring.

A preliminary visit was made to each hospital that provided care to premature infants to explain the study and to enlist cooperation. Subsequent survey visits were made by appointment, at which time key hospital personnel were interviewed and certain facilities and practices were directly observed.

Information Concerning the Premature Infant. All premature infants born in Maryland in 1952 and cared for in the hospitals of Maryland were included in the study. The hospitals agreed to furnish on forms provided to them certain details concerning each premature baby under care. The completeness of reporting was checked by reference to registered births for the same year, and over 98 percent of the required reports were received.

The neonatal survival status (28 days) was the primary fact about each child on which this evaluation study depended. There were four sources for this information:

1. The reports from the hospitals provided discharge data and status. Thus for all discharges of infants aged 28 days or over and for hospital deaths of infants under 28 days of age the 28-day status was known.

2. Death certificates for infant deaths were matched with birth certificates in Maryland, and so age at death for all of the premature infants dying in Maryland under one year of age was theoretically known from this source. For babies known to have been moved from Maryland prior to their reaching 28 days of age the vital records office of the state to which the baby went was asked to search its infant death files. Most states have filing systems that permit them to answer such a request.

3. Home visits were made by public health service nurses when the premature infants were over one month of age. These visits, part of a follow-up program not discussed in this paper, were limited to Maryland residents not known to have died in the hospital and for these infants provided a positive check on the survival of those not reported as dead to the vital records offices.

4. Letters to physicians or mothers or both for out-of-state babies were also used as a source of information on survival.

If a positive statement concerning either survival at 28 days or death prior to that age was not obtained, the 28-day survival status was considered unknown. There were 1.7 percent of the babies in this category of unknown neonatal survival.

The forms which were provided the hospitals were designed to furnish information concerning the premature infants cared for by each hospital so that as far as possible factors which might influence neonatal survival but which were independent of hospital practices might be identified and controlled. In addition, some data were obtained on the hospital report form as base-line information for the later follow-up study mentioned previously.

The following subjects were included: identifying information, economic status of family, age and parity of mother, race, sex, birth weight, length of gestation, prenatal care, transportation history for in-transfers, length of labor, analgesia and anesthesia, type of delivery, complications of pregnancy, labor and delivery, immediate postnatal condition of infant, and a few items concerning the care and health status of the baby during the hospital stay.

RESULTS

The arithmetic average of the two survey scores was used to rate the hospitals. On the whole the second score was higher than the first, the average difference being about five points. However, this shift was fairly uniform so that a hospital's rank was little different whether the first or second survey score was used. (Spearman's rank correlation coefficient equals 0.94.) The scores (here and subsequently this refers to the average of the two scores) ranged from 8.5 to 82.4 and were distributed as shown in table 1, second and fourth columns. The corresponding distribution of babies according to the score of the hospitals in which they received care are given in the third and fifth columns of table 1. Comparison of the hospitals and baby distribution reveals the tendency of the larger hospitals to score higher than the smaller ones.

Table 1. Distribution of Hospitals and Babies According to Hospital Score

Score	Hospitals with Given Score, No.	Babies Cared for in Hospitals with Given Score, No.	Hospitals with Given Score, %	Babies Cared for in Hospitals with Given Score, %
5-14	2	75	4.3	1.7
15-24	9	275	19.6	6.1
25-34	5	268	10.9	5.9
35-44	8	822	17.4	18.2
45-54	10	896	21.7	19.8
55-64	7	753	15.2	16.6
65-74	3	812	6.5	17.9
75-84	2	624	4.3	13.8
Total	46	4,525*	99.9	100.0

*4,458 different babies, with 67 babies transferred from one hospital to another being counted twice. One hundred twenty-four of the babies were home deliveries, 4,334 were born in a hospital.

For the purposes of correlating neonatal survival with degree of conformity to standards, the hospitals

were grouped in three divisions ranked according to hospital score so that each division contained approximately one-third of the premature infant population. Table 2 shows this grouping. The higher scoring of the large hospitals is again evident. In addition, the concentration of the nonwhite babies in these hospitals is noteworthy.

Table 3 summarizes the comparison of the three hospital divisions. The top ranking hospitals had a clear and statistically significant advantage over the two lower ranking hospital divisions for infants in the intermediate weight groups, 1,001 to 2,000 Gm. (2.2-4.4 lb.). In the 1,001-1,500 Gm. (2.2-3.3 lb.) birth-weight group the neonatal survival rate for the third of the babies cared for in the top ranking hospitals is about 16 percent above that for the remaining hospitals, with the standard error of this difference being 5.4 percent. The corresponding difference in the 1,501-2,000 Gm. (3.3-4.4 lb.) group is about 8 percent, with a standard error of 2.6 percent.

Table 2. Hospital Divisions, Showing Scores, Number of Hospitals, and Number of Premature Infants by Race, Maryland, 1952

Hospital Division	Hospital Score	Hospitals, No.	Premature Infants, No.		
			White	Nonwhite	Total
High 3rd	65 and over	5	539	897	1,436
Mid 3rd	50-64	14	1,350	111	1,461
Low 3rd	Under 50	27	1,302	326	1,628
Total	8.5-82.4	46	3,191	1,334	4,525*

*See note to table 1.

There was no significant difference among the hospital divisions in the extreme birth-weight groups, under 1,001 Gm. (2.2 lb.) and 2,001 to 2,500 Gm. (4.4-5.5 lb.). Nor was there evidence of any difference in survival rate between the middle and lowest ranking hospital divisions in any weight group.

As suggested earlier, one must consider various factors relating to the type of population cared for by the different hospital divisions before assuming that a difference in neonatal survival is causally related to the degree of conformity to standards. The material has, therefore, been examined specifically for each of the following characteristics: race, complications of pregnancy, labor and delivery, number of prenatal visits, and parity and education of the mother, the last as another index of socioeconomic level. In no case was there evidence that these factors have produced the difference demonstrated in table 3.

Two additional factors were considered: hospital transfers and fetal deaths. The number of transfers was small; only 73, or 1.7 percent, of the infants born in the hospital were transferred; however, since the transfer nearly always occurred from a lower ranking hospital to a higher and since there might well be some selection for transfer related to survival, this factor was examined. Table 3 presents the data with the transfers included in the hospital of birth. When the same material was examined with the transfers assigned to the hospital to which they were transferred, the results were essentially unchanged.

It was presumed that the basic definition of a fetal death was the same in each hospital and was in accord with the recommendation of the National Office of Vital Statistics. However, it was recognized that individual hospitals might differ in practice as to their classification of borderline cases. It was pertinent, therefore, to examine the comparison of the hospital divisions according to perinatal survival, defining perinatal survival as the ratio of 28-day survivors to the total of live births and fetal deaths of 20 or more weeks gestation. As with the other factors considered, this did not alter the findings.

One might ask if use of a shorter interval than the 28-day period would have altered the relationship between hospital rank and survival rate. Survival rates for the intervals from birth to one day, two days, and one week were examined in this connection, and the findings were unchanged. Furthermore, it was found that for the subintervals from birth to 1 day, 1 day to 2, 2 to 7 days, and 7 to 28 days, the survival rate for the top third of the hospitals uniformly exceeded that of the low two-thirds; although, as the survival rate rises in the later intervals and the corresponding number of deaths in this experience becomes small, the differences are not statistically significant.

The data presented support the standards insofar as survival is a criterion. Subsequent follow-up of a sample of these babies and a longitudinal comparison of them with a matched group of full-term babies is now in progress. Data on the neurological status and intellectual potential of these babies at 40 weeks of age have been reported and show that the incidence of abnormality increases as the birth weight decreases.[2]

The number of premature infants who survived to 40 weeks of age and were included in the longitudinal study is too small to demonstrate any difference between hospital divisions as to the incidence of neuro-

(Continued on page 90)

Table 3. Neonatal Survival Rate According to Hospital Division and Birthweight, Hospital-born Premature Infants,* Maryland, 1952

Hospital Division	Birthweight, Gm. (Lb.)												Births	Adjusted Survivals, %†
	Under 1,001 (2.2)			1,001-1,500 (2.2-3.3)			1,501-2,000 (3.3-4.4)			2,001-2,500 (4.4-5.5)			Total	
	Births	Survivals, No.	Survivals, %	Births	Survivals, No.	Survivals, %	Births	Survivals, No.	Survivals, %	Births	Survivals, No.	Survivals, %		
High 3rd	104	4	3.8	133	77	57.9	249	220	88.4	784	760	96.9	1,270	85.6
Mid 3rd	91	5	5.5	104	41	39.4	264	210	79.5	958	914	95.4	1,417	81.5
Low 3rd	93	6	6.5	126	55	43.7	303	243	80.2	1,049	1,003	95.6	1,571	82.2
Total	288	15	5.2	363	173	47.7	816	673	82.5	2,791	2,677	95.9	4,258	83.1

*Transfers are tabulated according to hospital of birth; 76 unknown as to 28-day survival are excluded.
†Weight distribution of the total births is used as the standard population.

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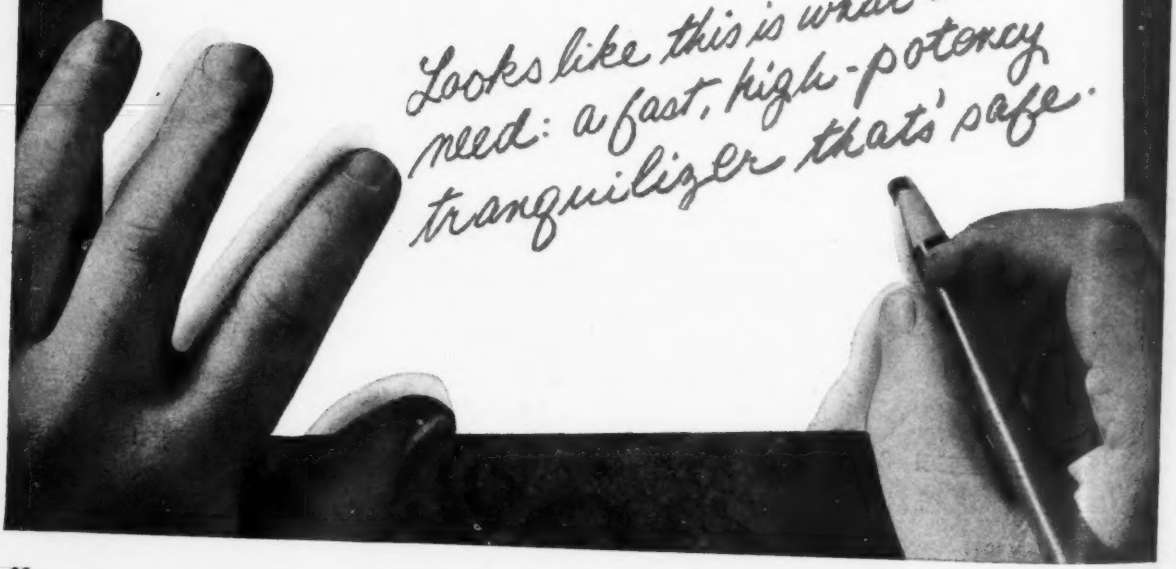

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(Continued from page 85)

logical or intellectual defect. It is not to be assumed that a study with larger numbers would demonstrate such a difference, for the lack of a significant difference might also be due to better prenatal and perinatal care in the high-ranking hospitals. However, one must add that the initial or 40-week results of the longitudinal comparison of premature and full-term babies have the practical implication that increased emphasis and support should be given to methods of preventing or delaying premature birth. This is a problem which is largely in the hands of obstetricians, general practitioners, and the community agencies and facilities which serve women during pregnancy and delivery.

SUMMARY

An evaluation of currently accepted standards for hospital care of premature infants was made by ranking all hospitals in Maryland on the basis of conformity to such standards and then correlating their rank with the neonatal survival rate of premature infants under their care in 1952. The study was designed to test the value of the standards as a whole but was not intended to assess any one item.

The data showed that hospitals conforming closely to accepted standards for the care of premature infants did exhibit a higher neonatal survival rate than did other hospitals. The findings could not be explained on the basis of the type of patient cared for by the hospitals. It is our opinion that these data are evidence of a cause and effect relationship between conformity with accepted standards and neonatal survival and so support the view that the standards in toto are valid.

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This study was supported in part by the Maryland State Department of Health from funds made available by the Children's Bureau, United States Department of Health, Education, and Welfare, and in part by funds from the Thomas Wilson Sanitarium.

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Epidural Anesthesia Found Effective for Pediatric Use

(The following abstract is taken from a paper presented during the Fall, 1957, meeting of the American Academy of Pediatrics.)

Epidural anesthesia should be used in pediatric surgery whenever indicated, particularly since all other technics have an increased hazard in this age group, states Ruston in *Anesthesia and Analgesia* 36:76-82 (May-June, 1957).

In an interim report on the use of epidural block for pediatric surgery, the author reports on his experiences in 80 patients, ranking in age from three weeks to 11 years. Lumbar epidural block was used in 76 patients, 34 of whom were being operated on for pyloric stenosis. In the remaining four patients, caudal block was used.

Barbiturate premedication and pentothal narcosis were used in all except young infants in order to avoid psychic trauma. A solution of 1 percent Xylocaine with 1:200,000 epinephrine proved the most dependable anesthetic, the author states, because of its minimal reaction in the tissue, its rapid blocking effect, and its prolonged action. Toxic reactions were not evident in this series of cases.

Contraindications to this form of anesthesia are few, according to the author. Conditions such as the presence of infection over the dorsum, and evidence of disease of the central nervous system are limiting factors. A definite contraindication which could be encountered in acute rheumatic fever is heart block.

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Other advice for treating flat feet in children includes not letting the child walk barefoot on hard surfaces during this period, and making sure of proper fit in shoes. The child's great-toe joint should lie directly behind the widest part of the shoe.

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Urologic Solution G, Abbott Laboratories' urinary tract irrigating solution, is designed to dissolve calcified calculi.

Solution has a pH of 4.0 and contains citric acid, U.S.P. monohydrate, magnesium oxide (anhydrous), and sodium carbonate (anhydrous). It is conductive, hence must not be used in presence of electrical instruments.

Solution is for irrigation use only, and is supplied in 1,000-cc Abbo-Liter containers.

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Amptainer, ampul newly developed by Winthrop Laboratories,

(Continued on next page)

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1. Grayzel, H. G., and Schapiro, S.: Western Journal of Surgery, Obstetrics and Gynecology, Oct. 1956.

provides spinal anesthetic solution in sealed container already sterilized by autoclaving.

Pontocaine 1 percent, 2-cc ampuls, and Pontocaine 0.25 percent in six percent dextrose, in 2-cc. ampuls, are currently supplied by Winthrop in Amptainers.

New Dosage Forms

J. B. Roerig and Co. has announced that it is now manufacturing 100-mg. Atarax tablets, as well as the 10-mg. and 25-mg. tablets. In addition, a parenteral solution of the drug has been made available.

The 100-mg. tablets, according to the manufacturer, are recommended for treatment of severe behavior problems, neuroses and psychoses, brain-injured children, and convulsive disorders. Tablets come in bottles of 100.

The parenteral solution is for treatment of acutely disturbed or hysterical patients, alcoholics, psychotics, and others to whom medication cannot be given by mouth. It comes in 10-cc multidose vials, for intramuscular administration. Each cc. contains 25 mg. of the drug.

* * *

Roche Laboratories has introduced oral capsules of Romilar CF (Cold Formula) in addition to the syrup dosage form previously available. Each capsule is equivalent to one teaspoonful (5 cc.) of syrup. Romilar CF combines 15 mg. Romilar hydrobromide (antitussive), 1.25 mg. chlorpheniramine maleate (antihistamine) 5 mg. phenylephrine hydrochloride (decongestant), and 120 mg. N-acetyl-p-aminophenol (analgesic-antipyretic).

* * *

Somatovite, containing thiamine mononitrate, vitamin B_{12}, and reserpine, is now available in liquid form. Marketed by the Purdue Frederick Co., Somatovite is designed to promote weight gain and correct faulty eating habits in hyperexcitable, underweight children. It is supplied in bottles containing 12 fluid ounces.

* * *

Tylenol Drops are a new form of the pediatric antipyretic-analgesic previously introduced as an elixir. Drops are fruit-flavored and can be mixed with milk or other beverages, and used in conjunction with sulfonamides and antibiotics. Each 0.6 cc. of Tylenol Drops (one calibrated dropperful) contains 60 mg. (1 gr.) Tylenol acetaminophen, giving comparable activity to one-half teaspoonful of elixir. Drops are supplied by McNeil Laboratories in bottles of 15 cc. accompanied by a calibrated plastic dropper.

* * *

V-Cillin Drops (penicillin V) have been introduced by Eli Lilly and Co., for pediatric use. Concentration of drops allows equivalent of full dose of oral penicillin to be administered in one dropperful. Drops are supplied in bottles of 1.5 Gm., containing 12 doses. Plastic dropper accompanying bottle is calibrated at usual dosage mark of 125 mg. (200,000 units).

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OB DEPARTMENT

Hospital Care of Mothers, Newborn Discussed at Institutes

By Marian F. Cadwallader, M.P.H., M.A.C.N.M.*

• Five one-day institutes on the hospital care of mothers and infants were held in five hospital council areas of Georgia in 1957, under the sponsorship of the Georgia Hospital Association, the Interdivisional Committee on Maternal and Child Health of the Georgia State League for Nursing, and the Divisions of Hospital Services and Maternal and Child Health of the Georgia Department of Public Health.

Requests for such programs had come to the consultant nurse in the Division of Hospital Services. As a result of the Hill-Burton hospital construction program, many new hospitals have been built throughout the state. These hospitals all boast the most modern equipment, with some of which the personnel are not familiar. Therefore, mass nursing procedures and technics continue to be used. This is especially apparent in the nurseries. The need for bringing personnel up-to-date had also been observed by the maternity and pediatric nursing consultants in the State Health Department.

PLANNING

While previous nursing institutes had been planned by the consultant nurse from Hospital Services, together with a committee of nurses from the hospital council area, the planning of these institutes was left in the hands of the three consultant nurses and members of the interdivisional committee of the Georgia State League for Nursing, for two reasons:

1. The local nurses on the committee had great difficulty getting away from their hospitals for planning meetings, with the result that the institutes were planned by the hospital nursing consultant and one or two other nurses.

2. The subject to be covered was so inclusive that only an overview could be given, and this could be more easily planned by nurses familiar with the general situation throughout the state.

It was felt that subtopics could be considered in more detail at later institutes, after the general subject had been discussed, and after the nurses had been given an opportunity to indicate their areas of special interest. The same program was planned for each council area, but the personnel to present it varied somewhat from place to place.

The hospital nursing consultant met with local groups to arrange for participation on the program, for the meeting place, and for equipment which would be needed during the institutes. All types of nursing personnel were invited. No registration fee was charged. Announcements of the institutes were sent out a month or six weeks in advance, and a follow-up invitation requesting a reply was sent within two weeks of the institute.

PROGRAM

A local hospital nurse presided at all meetings. The hospital nursing consultant opened each meeting with a statement of the objectives and an overview of the plans for the day. This was followed by the film, "A Concept of Maternal and Neonatal Care," which was introduced and discussed by the maternity nursing consultant.

The obstetrical supervisor from Emory University Hospital then presented "Nursing Care During Labor" and the "Immediate Postpartum Period." Some antepartum care was included in this topic, since many women are admitted to the hospital for one reason or another prior to admission for delivery.

In this presentation an effort was made to consider mental health implications of pregnancy for the family as a whole, and to place emphasis on the need for individualized care and for emotional support and comfort. At one of the institutes this topic was presented by a panel of local hospital nurses.

In the afternoon a lecture on the hospital care of the newborn infant was presented by the pediatric nursing consultant. Minimal skin care and axillary temperatures were demonstrated and discussed. This was followed by a presentation on continuing nursing care of mothers and infants, which covered the postpartum period in both the hospital and the home. Subjects discussed included breast and perineal care, with emphasis on the application of nursing principles to technics; the emotional status and needs of the mother after delivery; preparation of the family for taking the baby home, and referral to a public health nursing agency on a selective basis.

In four of the five institutes a local public health nurse discussed the services offered by her agency

*Consultant nurse, Division of Maternal and Child Health, Georgia Department of Public Health, Atlanta.

and invited future planning with hospital personnel to set up a referral system.

The afternoon ended with a few closing remarks by the hospital nursing consultant and a request for evaluation of the institute on a form provided.

While it was planned to allow time for discussion either during or after each topic, this did not always work out. During the afternoon particularly, time was often shortened because the host hospital wished all the visitors to see and admire its facilities.

EVALUATION

Two hundred and fifty-one persons—professional nurses, nursing students, practical nurses, and nurse's aides—from 37 hospitals and 29 health departments attended these institutes, but not all were able to spend the whole day. Evaluation forms were filled out by 104 of those who attended. Ninety-eight persons thought the institutes were helpful, and six did not answer the question. The advantage of including both hospital and health department nursing personnel was recognized repeatedly.

One hundred thought additional institutes were needed, one person thought they were not needed, and three persons did not answer the question. As a topic for future institutes most nurses were most interested in the medical and nursing care of complications of pregnancy, with nursing care of the premature infant running a close second. They were least interested in an in-service training program in a maternity department.

Other items on the evaluation form, for which the nurses were asked to state a preference, were relaxation technics and natural childbirth, and teaching patients and families in the maternity department.

The nurses indicated an interest in more detailed consideration of each of the major program topics for future institutes.

It is hoped that we shall be able to follow up this series of institutes with others on maternal and newborn care during the next year.

The following abstracts are taken from papers presented at a postgraduate course following the annual clinical congress of the American College of Surgeons, held in October, 1957, in Atlantic City, N. J. Other abstracts from this meeting appeared in TOPICS' January issue, pages 75-78.

Speakers Analyze Effectiveness Of Tests for Ovulation

Calls Pain, Bleeding Not Reliable Signs; May Indicate Local Pathology

Most tests for ovulation are tests of progesterone activity, which is only manifest after ovulation. These results are of questionable value when the information needed is the actual time of ovulation to enable a woman to either avoid or induce pregnancy.

Some enthusiasm exists for promoting ovarian bleeding or ovarian pain as indicators of ovulation. The presence of pain in a lower quadrant around the time of what must be ovulation can only be considered a fallible symptom of ovulation, since it is seldom that this type of pain can be distinguished from other pains in the same area.

Daily vaginal smears throughout the menstrual cycle to detect ovarian bleeding must be useful, but these results are only apparent microscopically, and although the technic is considered accurate in primates, it is not so for humans. Such pain and bleeding as may occur may be signs of local pathology, since in normal ovaries in normal individuals with normal ovulation, such pain should not exist.—*C. Lee Buxton, M.D.*, Professor and Chairman, Department of Obstetrics and Gynecology, Yale University School of Medicine, New Haven, Conn.

Cervical Secretion Becomes Clear, Watery At Ovulation Time; Contains More Sugar

The recoil characteristic of cervical mucus is enhanced at ovulation—immediately before, it breaks after only slight attempts at removal, but it pulls out to 28 to 30 mm. before breaking at time of ovulation.

Around the time of ovulation, the mucus produces a good environment for the ova. Before and after ovulation, it acts as a buffer to sperm.

The amount of sugar in cervical mucus is greatly increased at the time of ovulation. As the time of ovulation approaches, the cervical secretion becomes clear and watery. These characteristics are as good criteria of ovulation as any for the individual woman to apply. —*W. T. Pommerenke, M.D., Ph.D.*, Associate Professor, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

The following abstracts summarize papers presented at the annual meeting of the American Public Health Association, held in November in Cleveland, O. For other news of the meeting, see TOPICS' report in the January issue, pages 21-23.

Find Link Between Prenatal Care, Mother's Socioeconomic Status

Poor Dental Care Marked in All Classes

In an effort to determine the relationship between adequate prenatal supervision and social and economic status of the mother, and to obtain a picture of the prevalence and distribution of unmet need for this type of medical care, a survey was undertaken in metropolitan Boston. The study included 609 births in 21 hospitals within the area chosen for the month-long survey.

Questionnaires, given to mothers on the second or third postpartum day, were designed to yield the following information: (1) parity; (2) length of gestation in weeks; (3) whether prenatal care was received and from what source; (4) "quantity" of care in terms of numbers of prenatal visits; (5) content of care; (6) health education.

The quantity of care was rated unsatisfactory in 68 percent of those in the lowest socioeconomic group, while only 19 percent in the highest groups received

(Continued on next page)

unsatisfactory care. Satisfactory care is defined as a minimum total of seven prenatal visits during a 40-week period.

Content of care was satisfactory in most cases. Health education was good among those who had medical supervision.

The greatest lack was in dental care. No dental visits were made during the current pregnancy by 85 percent of those questioned in the lowest group, and by 40 percent of those in the highest two groups. Even a large proportion of those needing immediate dental care did not seek it.—*Leonard S. Rosenfeld, M.D.*, director, and *Avedis Donabedian, M.D.*, medical associate, Medical Care Evaluation Studies, Health Division, United Community Services of Metropolitan Boston.

Survey Shows Only One of Four Mothers Attempt Breast Feeding

Found to Be Most Common In Upper Class Families

Among 1,433 mothers, studied three to six months after the birth of a surviving child, it was shown that breast feeding was begun by only one out of four mothers. The survey, undertaken in New York State, also revealed that 50 percent of the mothers who began breast feeding discontinued it at or before the sixth week.

The decision to breast feed appeared to be influenced by social class and birth rank. Usually, fewer second children were breast fed than first children.

An analysis of the duration of breast feeding showed that upper class mothers who decided to breast feed their babies continued to do so for a longer period of time than lower class mothers who made a similar decision.

The finding that breast feeding is most common among upper class families and least common among those in the lowest class is contrary to the findings of studies made in Boston and Chicago some years ago. The new findings suggest that a shift in infant feeding patterns is probably occurring in New York with breast feeding becoming less popular among the lower classes.

It is probable that the over-all incidence of breast feeding is dropping.—*Alfred Yankauer, M.D.*, director, Bureau of Maternal and Child Health, New York State Department of Health, Albany; *Walter E. Boek, Ph.D.*, research anthropologist, New York State Department of Health, Albany; *Edwin D. Lawson, Ph.D.*, assistant professor of psychology, State University of New York College for Teachers, Albany.

Higher Fat Content May Explain Superiority of Breast Milk

Studies Survey Importance Of Nutritional Elements

(Abstract of paper presented during annual American Dietetic Association meeting, held in October in Miami, Fla.)

Comparison tests of the components of cow's milk and of breast milk show that the greater amount of unsaturated fatty acids in breast milk may account for its superior quality. Breast milk is still unsurpassed as a food for babies.

A study was made in infants of the two, three and four double bond fatty acids in the blood serum under various dietary conditions wherein linoleic acid was fed at different intakes. The findings disclosed that the level of unsaturated fatty acids corresponded with the dietary adequacy of linoleic acid as indicated by study of caloricity and the condition of the skin.

The fact that breast milk is three to three and one-half times greater in linoleic acid content than cow's milk may explain, in part, some of its advantages.

Previous tests have shown that the water and calorie contents of the usual artificial milk preparation and mother's milk are essentially the same. Breast milk also contains lesser amounts of protein and minerals, so these elements do not account for its good nutritive value. The practice of modifying cow's milk by dilution with water and the addition of carbohydrates makes it seem unlikely that the carbohydrate composition is of any significance. The nutritional importance of antibodies, pigments, and enzymes is not known.

Milk mixtures lacking essential fatty acids are not advocated for infant feeding.—*Arild E. Hansen, M.D.*, chairman, department of pediatrics, the University of Texas Medical Branch, Galveston.

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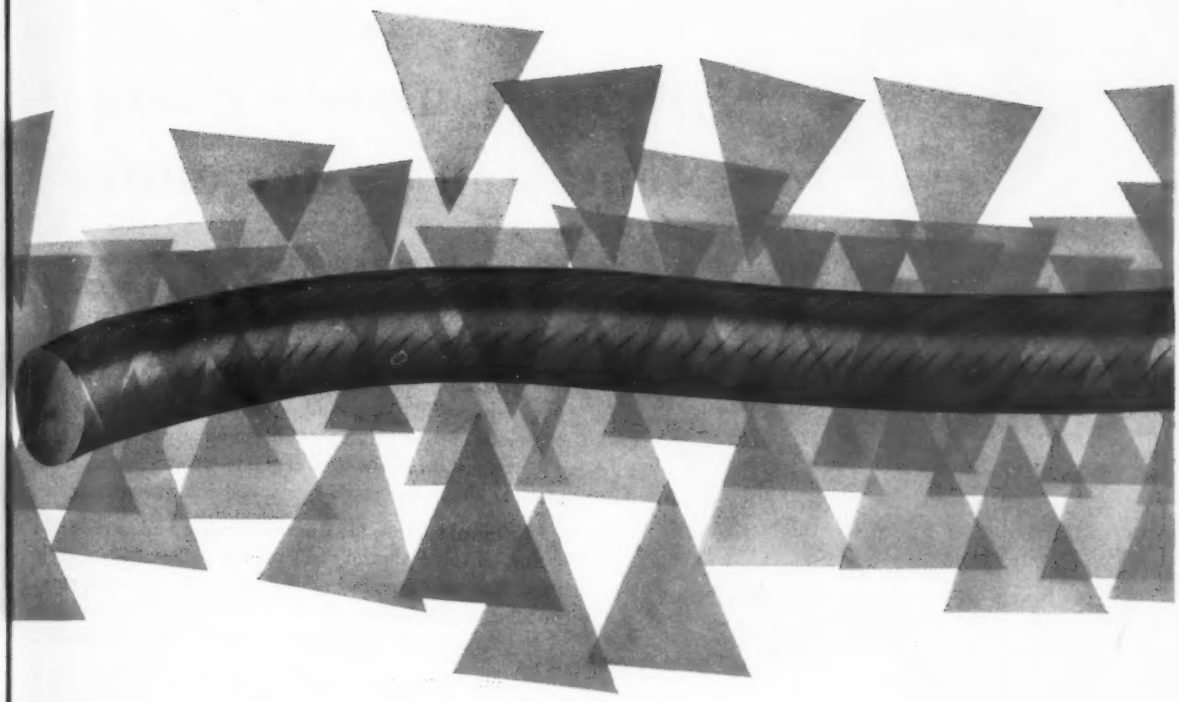

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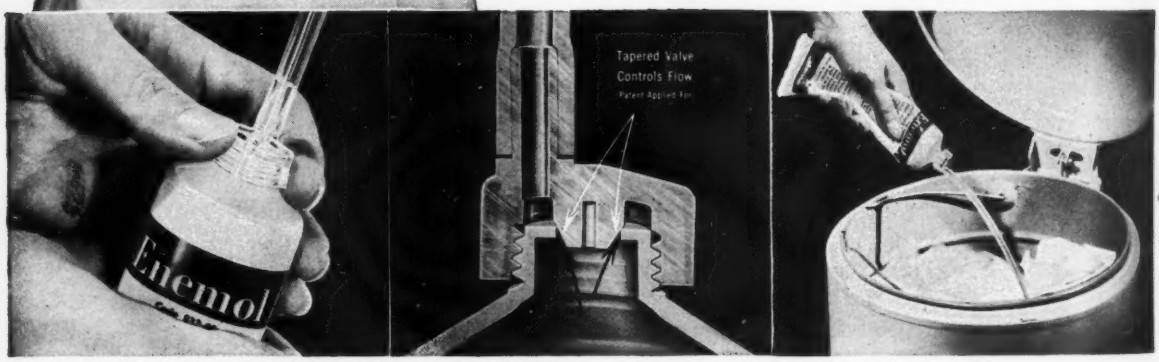

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HOSPITAL Topics

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Official bulletin for the Association of Operating Room Nurses

Open Letter to All O. R. Nurses:

• This month, during the fifth national congress, the Association of Operating Room Nurses celebrates its first birthday as a national organization. Our membership is now over 2,000 and headed for the 3,000 mark. As an operating room nurse, you can feel proud of this record, and be confident as we face the future together.

In an organization whose officers and members are actively working in hospital operating rooms, it is difficult to have as direct contact with one another as we would all like. As your president, for example, I would very much like to attend a meeting of each local group and learn how your national officers can serve you better. To the best of my ability, I shall try to do just that this year. In the meantime, you can help by letting me know what is on your mind.

Write me about suggestions for our program at next year's congress in Houston, preliminary plans for which are already under way. Tell me what you like or what you think could have been improved in this year's meeting in Philadelphia.

Everyone in the hospital field is tremendously impressed with our association's vitality and its practical, geared-to-the-job program. This is because the AORN is *your* organization. Its officers share your daily hospital problems. The national congress program is planned *by* operating room nurses *for* operating room nurses. The exhibitors are specially selected because they serve the operating room. So take a part in the tremendous future ahead for us as O.R. nurses.

If there is not an AORN group in your immediate vicinity, remember that you can become a member of the national association by sending a letter giving your name, address, state registration number, and $1 for a year's membership dues to the national headquarters: Association of Operating Room Nurses, 305 W. 18th St., New York 11, N. Y.

If you would like to serve on a committee, such as the new publicity committee, let me know. Let's all work together.

Sincerely,

Pauline R. Young

Pauline R. Young, R.N., President
Association of Operating Room Nurses

The Growing AORN

Here is the latest list of AORN groups on record in the national headquarters, along with the names of the officers to whom correspondence is addressed. If your group is not listed here, or if some change should be made in the listing, please notify the national representatives at the AORN desk at the congress in Philadelphia, or mail the information to: Association of Operating Room Nurses, 305 W. 18th St., New York 11, N.Y.

Edith Dee Hall, R.N.
Executive Secretary

California

Bakersfield—Mrs. Imogene Castle, 211 Frances St., Bakersfield.
Fontana—Barbara Hohner, Kaiser Foundation Hospital, Fontana.
Fresno—Mrs. Martha Hiebert, Fresno Community Hospital.
Long Beach—Mamie Hughes, St. Francis Hospital, Lynwood.
Los Angeles—Jerry Peers, 1810 Idaho Ave., Santa Monica.
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Oakland—Joanne Brinkman, 2400 Ivy Dr., Oakland.
Sacramento—Mrs. Lorraine Tinker, 2967—39th St., Sacramento 17.
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Santa Ana—R. Secene C. Cook, Doctors Hospital, Santa Ana.
Santa Barbara and Ventura Counties—Hazel Maitland, San Marcos Trout Club, Santa Barbara.
Santa Cruz—Edna Hunter, Dominican Santa Cruz Hospital.

Colorado

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District of Columbia

Washington—Elizabeth Eberhardt, Glenn Dale (Md.) Hospital.

Georgia

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Worcester—Mrs. Hilda A. Smith, Highland St., Berlin.

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St. Louis—Mrs. Gertrude Ray, Barnes Hospital, St. Louis.

Nevada

Reno—Marjorie Robinson, 705 Wilson Ave., Reno.

New Hampshire

Manchester—Barbara Cooper, 145 Allen St., Manchester.

New Mexico

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Long Island—Mrs. Doris Deimel, 32 Hampshire Rd., Rockville Centre.
New York City—Edith Dee Hall, 305 W. 18th St., New York 11.

Ohio

Akron—Margaret Carringer, 311 Mason Pl., N.W., Canton 3.
Cincinnati—Lillian Regan, Cincinnati General Hospital.
Columbus—Mary R. Ammons, 1694 N. High St., Columbus.
Toledo—Shirley Haberkamp, 4417 Eastway, Toledo.

Oregon

Salem—Mrs. Marjorie Swanson, 1984 State St., Salem.

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South Dakota

Huron—Sister Aloysilla, St. John's Hospital, Huron.

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El Paso—Mrs. Virginia Dougherty, 3301 Tyler Ave., El. Paso.
Houston—Edna Ashy, VA Hospital, Houston.
Tyler—Sister M. Domicille, Mother Frances Hospital, Tyler.

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Newport News—Mrs. Sarah J. McNeill, Riverside Hospital, Newport News.

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Olympia—Mrs. Rose K. Bean, 239 N. Sherman St., Olympia.
Seattle—Harriet M. Harder, 6006 S. 119th St., Seattle.
Tacoma—Mrs. Kenneth A. Leech, 15218 Union Ave., S.W., Tacoma, 99.

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Oahu—Mrs. Rita Gallegos, Queen's Hospital, Honolulu.

Puerto Rico

Santurce—Mrs. A. Navas Sosa, Professional Hospital, Santurce.

AORN Plans Sessions At ICS Congress

A one-day program for operating-room nurses will be presented March 13, during the 11th international congress of the International College of Surgeons, at the Hotel Ambassador, Los Angeles.

The morning session will feature a panel discussion on wound infections. The afternoon program will include a lecture on "Surgery of the Open Heart" and a problem-solving panel, with a moderator and three participants, who will talk on analyzing the problem, group participation, and guidance and counseling technics. Their discussion will be followed by a question-and-answer period.

Edith Dee Hall, R.N., New York City, executive secretary, Association of Operating Room Nurses, is program chairman. Co-chairman is Jerry Peers, R.N., president, Los Angeles Association of Operating Room Nurses, and operating room supervisor, UCLA Medical Center.

SELECTED BIBLIOGRAPHY

Anesthesia

By Dorothy W. Errera, R.N.

Mitchell, John H., Hulme, N. A., and Christensen, J. M.: "A New Local Anesthetic." *Am. J. Surg.* 94-111, July, 1957.

A recently introduced local anesthetic—propyoxycaine Hydrochloride—appears to obviate the limitations of procaine, which is slow-acting and has an effect of short duration. Large volumes of solutions of procaine are necessary to achieve a nerve block, and it has practically no effect as a topical anesthetic. In addition, it is known to inhibit the action of the sulfonamides.

This study describes the use of this new local anesthetic in a series of 71 surgical procedures ranging from digital amputation to removal of a splinter. The average dose of anesthetic was 2.25 cc. No untoward reactions were observed in any of the patients studied.

Hamilton, William K., and Devine, J. C.: "The Evaluation of Respiratory Adequacy in the Immediate Postoperative Period." *Surg., Gynec. & Obst.* 105:229, August, 1957.

Twenty-five percent of the patients arriving in the recovery room of a large general hospital were found to have expiratory carbon dioxide tensions in excess of 45 mm. Hg., the arbitrary dividing line above which respiratory insufficiency was considered to occur. Various agents and technics of administration are discussed and analyzed, and it is observed that respiratory insufficiency appears most commonly in patients receiving large amounts of non-volatile intravenous drugs. The carbon dioxide retention apparently results from previous hypoventilation or drug depression on the central nervous system or peripheral neuromuscular apparatus. The situation seldom seems to be obvious enough to prompt spontaneous corrective therapy.

Correspondence: Protection for Anesthetic Records. John B. Stetson. *Anesthesiology* 18:509, May-June, 1957.

To protect permanent patient records which are exposed to potential contamination during surgery involving active infection, the author suggests sealing the record in a polyethylene bag of a type commonly used by laundries and dry cleaners. Carbon paper is arranged appropriately, and an extra blank record sheet is placed over the carbon. A ball-point pen is used to record data throughout the procedure. At the finish, the polyethylene bag is disposed of, leaving a clean record which has been marked through the carbon.

Shane, S. M., and Ashman, H.: "The Prevention of Postoperative Shock and Postanesthesia Hypotension by the Use of Reverse Trendelenburg During Surgery Under Light Etherless General Anesthesia." *Am. J. Surg.* 94:102, July, 1957.

The phenomena concerned in the fall of blood-pressure after removal of the anesthesia mask in surgery involving the use of Trendelenburg and/or lithotomy positions include a multitude of factors which can be referred to as a generalized interference with the normal dynamics of circulation and respiration. In this study, the latter are described and oriented to the problem of postoperative hypotension.

The authors describe experience in several years of surgery done, using a mixture of 11.7 percent cyclopropane, 29 percent nitrous oxide, and 58.9 percent oxygen administered by a semi-closed absorption system. The mixture does not produce surgical anesthesia, but in conjunction with a small intravenous dose of an ultra-short-acting barbiturate will maintain plane I for an indefinite time without additional or intermittent doses of barbiturate. Muscle relaxants are used when indicated.

The advantages of this system are a light persistent plane I anesthesia without the likelihood of overdosage; rapid postoperative recovery with less nausea and vomiting. Twenty-five thousand administrations of this type of anesthesia without fatality have been reported.

In this study, surgery usually done with the table in the horizontal position has been done with the table in reverse Trendelenburg from beginning to end of procedure. The position may vary from 10 to 30°, depending on the individual surgeon's choice, but never exceeds 40°, because at an angle of 50°, circulatory embarrassment becomes evident.

For gynecological and pelvic surgery done via the abdominal route, Trendelenburg is allowed until the peritoneum is closed, after which the table is swung into steep reverse position and kept so until the skin is closed. During the interval of anywhere from 10 to 30 minutes the patient adjusts to the new position while still under anesthesia.

When surgery involves the perineal approach, and the use of stirrups with lithotomy position, reverse Trendelenburg is not used, but surgery is usually terminated simultaneously with anesthesia. Before the anesthesia mask is removed and before the patient's legs are taken from the stirrups, the table is placed in steep reverse Trendelenburg, and each leg is wrapped toe to groin in an elastic bandage. Anesthesia is then discontinued simultaneously with leveling of the table.

It is believed that the elastic bandages tend to increase the relative blood volume by compressing the vascular bed and at the same time augmenting venous return from the lower extremities.

A Current Analysis of the Cost of Anesthetic Agents*

By Robert A. Hingson, M.D., Edwin F. Ross, and E. Christine Costley**

• It is our belief that directors of departments of anesthesia and hospital administrators should regularly analyze together the current cost of individual anesthetic agents and basic equipment, and the total cost of the anesthetic agents and supplies utilized by the department in the care of both surgical and obstetrical patients.

From such studies as these, a cost accounting of the expenditure for each patient can be determined on an equitable basis. The utilization of this information permits an accurate projection of the anesthesia budget on a year-to-year basis. Unnecessary cost can thereby be reduced after such analysis.

We do not feel that the cost of anesthesia agents should necessarily contraindicate the use of any technic, method, or combination of agents when it is determined by the anesthesiologist that the use of such particular combination or agent would be to the advantage and safety of the patient. However, when there are several good methods readily at hand, which would be equally safe in the care of any one patient, we see no reason for the routine use of a $6 or $8 per hour method involving the combinations of "polypharmacy" in preference to the use of a proved single agent that would cost considerably less than 50 cents per hour. The practice of such selective economy would effect a saving to the patient and in the hospital budget.

In order to make this cost analysis, we first determined the current 1957 prices of the compressed gases in E, D and H cylinders. Second, we determined the cost of volatile anesthetics in the usual retail sizes of cans or bottles. Third, we determined the unit cost of the individual ampules of anesthetic agents or ancillary drugs that are used with anesthetic agents during surgery or obstetrics. These are recorded in Table I and II. Finally, we determined the cost of balanced anesthesia when several drugs were used concurrently in a program of drug synergism designed to prevent the effect from undesirable quantities of any single agent, thus distributing the load of metabolism and breakdown and elimination of the various anesthetics in the balanced combination through the liver, reticuloendothelial system, plasma, kidneys, and lungs. These agents are listed in a unit and cumulative cost analysis in Table III.

Table I

ANESTHESIA MAINTENANCE

		Cost Per Hour
1.	Nitrous oxide-oxygen, semi-closed (6 L - 2 L)	$2.80
2.	Ether plus oxygen (open drop) child	.80
3.	Ether plus oxygen (insufflation) child	.90
4.	Cyclopropane plus oxygen, closed	1.54
5.	Ethylene plus oxygen, semi-closed	4.20
6.	Ether plus oxygen, closed	.35
7.	Pontocaine—glucose	.46
8.	Nupercaine 1:200	.32
9.	Nupercaine 1:1500	.71
10.	Novocaine, 120 mg.	.25
11.	Trichlorethylene	.07
12.	Caudal and peridural:	
	(a) Metycaine 1 percent or Xylocaine 1 percent with epinephrine	.15 to .25
	(b) Pontocaine 0.15 percent with epinephrine	.10 to .15

Table II

ANESTHETIC INDUCTION AND ACCESSORY DRUGS

		Cost
1.	Pentothal induction, 500 mg.	$ .27
2.	Vinethene induction	.32
3.	Nitrous oxide induction	.44
4.	Ethylene induction	.68
5.	Cyclopropane induction	1.90
6.	Demerol .....100 mg.	.15
7.	Flaxedil .....100 mg.	.50
8.	d-tubocurarine ..... 20 mg.	.50
9.	Succinylcholine ..... 80 mg.	.27
10.	Procaine, 2 percent solution...(3 cc. amp.)	.075
11.	Neosynephrine, 1 cc..(10 mg.)	.22
12.	Seconal .....100 mg.	.08
13.	Wyamine ..... 30 mg.	.30
14.	Ephedrine ..... 50 mg.	.05
15.	Neosynephrine, 1 percent solution...(5 cc. vial) 10 mg.	.11
16.	Levophed, 4 cc.	.56
17.	Tensilon ..... 10 mg.	.19
18.	Prostigmin .....1 cc. = 1 mg.	.20

*Reprinted with permission from the November-December, 1957, issue of the *Western Journal of Surgery, Obstetrics and Gynecology.*
**Dr. Hingson is professor of anesthesia, Western Reserve University School of Anesthesia, and director of anesthesia, University Hospitals of Cleveland. Mr. Ross is assistant director, University Hospitals of Cleveland, and Miss Costley is a senior medical student at the Western Reserve University School of Medicine.

For the past several years in the University Hospitals of Cleveland and the affiliated hospitals of Western Reserve University, we have made an annual check into the cost and maintenance of anesthetic machines, airways, syringes, needles, sterilization, and sterile packaging. In these hospitals in 1956, we administered 25,751 anesthesias in the management of 19,176 surgical operations and 7,656 obstetrical labors and deliveries.

Our use of agents and technics is divided equally on the one hand between the methods that provide anesthesia by the systemic or encephalic approach, and on the other, the methods that provide relief of pain through the anatomic or the conduction anesthetic technics of caudal, peridural, spinal, regional block, and local. In prorating the cost of the purchase, maintenance, and replacement of anesthetic equipment in our department, we have determined it to average $2 per case.

As can be seen in Table III, the cost of a balanced anesthesia per hour, drug cost only, represents an expenditure of $4.22. This is based on the cost of nitrous oxide and oxygen at $2.80, plus a Pentothal induction of 27 cents, and the use of a muscle relaxant costing 50 cents, plus the use of intravenous Demerol at 15 cents an ampule, soda lime at a unit cost of 20 cents for 500 Gm., and 30 cents for the premedication. Thus, each anesthesia of this type, in drugs and anesthesia equipment alone, costs $6.22 per hour. Projecting only the drug and anesthetic cost of a 10-hour complicated anastomosis or a Whipple type of operation, this produces an over-all anesthesia cost of $44.22, exclusive of professional service.

It is interesting to compare this total cost with the same operation performed under a continuous extradural or a continuous spinal anesthesia for 10 hours at 25 cents per hour for anesthetic agents, and 60 cents per hour for oxygen at two-liter flow rate from an E cylinder (wall oxygen would cost one-fifth this amount), yielding a total cost of $8.50. Thus, there is a difference in cost of management with these two different methods of approximately $36 per 10-hour case, or approximately $3.60 per hour case. It is obvious that any clinic having 10,000 operations per year, expending $6.22 per hour, would have an anesthesia drug and equipment budget of $62,200, whereas an institution managing 10,000 cases per year with one of the continuous conduction methods would expend $36,000 per year in the use of anesthetic agents and maintenance of anesthetic machines and equipment.

The University Hospitals of Cleveland expended during 1956, $33,579.05 for anesthetic agents and operating room oxygen. During the year 28,717 anesthetic agents were administered to 16,978 patients. Thus, the average cost of each anesthetic agent per case was $1.25; and the average cost of anesthetic agents and oxygen per case was approximately $2. During 1956, our patients were anesthetized for a total of 19,611 hours.

(Continued on next page)

Table III

BALANCED ANESTHESIA PER HOUR

(Drug Cost Only)

Premedication	$ .30	
Pentothal induction	.27	
Muscle relaxant	.50	
Nitrous oxide-oxygen, semi-closed	2.80	
Demerol, intravenous	.15	
Soda lime	.20	
		$ 4.22
Prorated cost for use of machines, upkeep, airways, syringes, needles, sterilization, and sterile packaging, per case		2.00
Thus each one hour anesthesia of this type in drugs and equipment alone costs per hour		6.22
Projecting only drug and anesthesia cost of a 10-hour complicated anastomosis or Whipple type of operation produces an over-all anesthesia cost of exclusive of anesthesia service.		44.22
Compare this cost with same operation performed under continuous extradural for 10 hours at 25 cents per hour, or		2.50
plus oxygen costing .60 per hour, yields		6.00
		$ 8.50

Or a saving of $36 per 10-hour case, or approximately $3.60 per hour per case.

Table IV

ANESTHESIA MACHINES AND ACCESSORIES PER STANDARD OPERATING ROOM

	Cost
1—#413A Kinetometer 4-gas anesthesia machine (includes one set rubber goods)	$ 855.00
1—Two-way valve	40.00
1—#10 bubble thru to-and-fro ether vaporizer head	83.00
1—Ether wick for #10 head	12.40
1—Ether jar for #10 head	6.00
1—#6 bracket for Becton, Dickinson B. P. manometer	10.80
1—Mercury manometer	34.00
1—B. P. cuff	7.00
1—Stethoscope for B. P.	6.00
1—Conductive rubber 5-liter rebreathing bag	4.35
3—Masks, selection sizes $8.65 ea.	25.95
1—Mask casting—circle absorber system	25.00
1—Mask casting—to-and-fro system	17.50
1—Head strap	4.35
1—Liter collector bag for infants	4.05
1—500 cc. collector bag for infants	3.00
1—Tray	7.25
1—Bracket assembly for trap	30.00
To-and-fro canisters $30.00 ea.*	
1—Suction bottle and holder $10.00 ea.	20.00
10 ft. Tubing bottle to wall $ .12 pr. ft.	1.20
5 ft. Tubing bottle to patient (conductive 0.26 ft.)	.78
1—Glass connector	.10
1—Suction catheter	.40
1—Flashlight	2.75
accessories optional	
Total	$1,200.88

*Accessories optional.

Dividing the cost for the year of anesthetic agents, totalling $33,579.05, by 19,611, yields an average patient cost of $1.71 per patient per hour. We feel that this figure may be of value in assisting hospital administrations in establishing the unit cost of anesthetic agents per patient per hour.

Table V

RESPIRATORS

	Cost
Jefferson	$ 560.00*
Rand-Wolfe	600.00*
Mautz	350.00*
Etsten ventilator	150.00
Western Reserve portable anesthesia machine	89.50
Total	$1,749.50

*An optional selection of one of three types at approximately $500 each would reduce total inventory by $1,000 per operating room.

Table VI

STANDARD INTRAVENOUS ANESTHESIA EQUIPMENT IN EACH OPERATING ROOM

	Cost
1—Table (or cabinet) for intravenous equipment	$ 50.00
6—5-cc. Luer-Lok syringes ($20.40 per dozen)	10.20
6—2-cc. Luer-Lok syringes ($15.96 per dozen)	7.98
6—30-cc. Luer-Lok syringes ($43.92 per dozen)	21.96
12—#24 needles x ¾	1.39
12—#22 needles x 1½	1.55
12—#20 needles x 1½	1.55
12—#18 needles x 1½	2.03
12—#16 needles x 1½	2.03
1—Pentothal syringe holder	40.00
1—Pentothal bottle	1.00
6—Stopcocks $2.94 ea.	17.64
1—Tourniquet	
Total	$157.33

Table VII

STANDARD AIRWAY EQUIPMENT FOR ANESTHESIA IN EACH OPERATING ROOM

	Cost
2—Adult Guedel rubber airways, $1.88 ea.	$ 3.76
1—#3 Child's Gudel rubber airway	2.50
1—#2 Child's Guedel rubber airway	2.50
1—#1 Metal Connell airway	5.00
1—#0 Metal Connell airway	5.00
1—#00 Metal Connell airway	5.00
1—Nasal rubber airway	1.00
1—Stephen Slater valve	18.00
1—Rubber valve (replacement part)	1.50
1—#12 Suction catheter	.56
1—#10 Suction catheter	.56
Total	$45.38

It has been our experience that the use of wall oxygen piped into the operating room from a central supply is only one-fifth as costly as the use of oxygen from the small E tank on the anesthetic gas machine. Furthermore, we believe that there is a factor of safety in the former approach in that one can always be sure of an oxygen supply piped into the manifold system of the anesthetic machine, with no chance for the oxygen cylinders to run low since the large commercial companies check and maintain the pressure within the large reservoir cylinder of the central supply system, never permitting it to fall to a critically low level.

Table VIII

ENDOTRACHEAL EQUIPMENT QUANTITY REQUIREMENTS OF EACH MAJOR OPERATING ROOM

	Cost
1—Magill forceps	$ 17.50
1—Endotracheal catheter guide	2.50
1—Metal mouth suction	2.25
Assorted suction catheters #12, #10 (plastic, infant)	1.00
1—Scope handle	15.00
1—#3 blade	20.00
1—#2 blade	20.00
1—Infant blade	20.00
1—Macintosh blade	20.00
1—Scope bulb	1.85
16—Assorted catheters, Endotracheal $2.00 ea.	32.00
12—Endotracheal catheter balloons $1.75 ea.	20.00
Portex tubes (optional) .75 to .90 ea.	
Wire embedded tubes (optional) $3.50	
Sanders cuffs (optional) $2.75	
1—set connectors, 3 mm., 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 straight, at $1.75	19.00
1—set connectors, curved, at $2.25	24.00
1—Catheter Y adapter with exhaling valve	13.00
1—Universal metal Y adapter (optional) $6.50	....
1—Plain tip syringe to inflate balloon	3.55
Lubrication	....
Gauze sponges	....
Adhesive	....
Total	$231.65

Summary—Tables IV - VIII

TOTAL STANDARD INVENTORY FOR ANESTHESIA EQUIPMENT EACH MAJOR OPERATING ROOM

	Cost
Table IV	$1,200.88
Table V	1,749.50*
Table VI	157.33
Table VII	45.38
Table VIII	231.65
Grand Total	$3,384.74

*Optional equipment with $1,000 reduction in grand total by excluding two of three respirators.

University Hospitals of Cleveland, with 16 major operating rooms at $2,500 per room, maintain an anesthesia inventory of $40,000 exclusive of research instruments.

Table II lists the costs of the various anesthetics and accessory drugs used in induction technics. These must be added to the maintenance technic to get the true total anesthesia cost. Also listed in Table II are the unit costs of ampules of the analgesics such as Demerol, the soporifics such as Seconal, vasopressors such as Neosynephrine, Wyamine, and so forth, the muscle relaxants such as Flaxedil, d-tubocurarine, and succinylcholine, and the antidotes or antagonists for some of the anesthetic drugs such as Tensilon and Prostigmin.

Finally, it is hoped that this compilation of data involving the current 1956 cost of anesthetic agents will be of value to: (1) hospital administrators who are planning hospital budgets in the cost of anesthetic drugs on a yearly basis; (2) directors of departments of anesthesiology and private anesthesiologists, who should work closely with hospital administrators in curtailing unnecessary expenditure in departments of anesthesia compatible with the patients' comfort and safety; (3) residents in anesthesia who will ultimately be setting up departments of their own; and (4) all members of an anesthesia staff who have the responsibility of selecting the safest and most effective method of anesthesia for the patient, and yet who at the same time should never lose sight of the endeavor to prevent an unnecessary spiral of cost to the patient and of operation to the hospital.

Tables IV through VIII list the current inventory in each major operating room of average standard anesthetic machines, assorted masks, airways, endotracheal equipment, connectors, valves, canisters, and expendable replacement parts which should be readily available. Thus, directors planning or equipping new rooms and hospitals are able to project a total departmental inventory by multiplying the number of major operating rooms by the cost of equipping a standard room.

From our hospital records we have determined the cost of incorporating all the explosion and fire hazard preventive measures to be $6,500 per standard operating room of 17 by 20 feet with adjacent functional scrub room and instrument sterilizing room.

It can be seen from an analysis of the figures in Table I, that the cost of the general anesthetic agents used in most surgical and obstetrical operating and delivery rooms ranges from $4.20 an hour for ethylene and oxygen to 25 cents an hour for continuous spinal procaine, or seven cents an hour for trichlorethylene.

Uncovered Scalp Hair as a Source of Contamination*

By William H. Prioleau, M.D.**

• The improper use of the surgical cap is noted quite commonly in hospitals in various parts of the country and also in illustrations in medical journals. Occipital and temporal hair remains uncovered when the cap has its lower border turned up or if it is poorly designed (Fig. 1). Loose hair, dust, and dandruff can readily fall into the operative field, especially when the surgeon leans over the table. Contamination from this source can be the cause of wound infections not otherwise explained. Scalp hair found in the operative field cannot rightly be assumed to have come from the autoclaved pack.

In this breach of technic, surgeons, including the resident staff, are most commonly at fault. In marked contrast to the careless attitude of these surgeons is that of the nurses whose hair is generally adequately covered, often with a hood. On the other hand, anesthesiologists not infrequently are offenders, apparently so preoccupied with their particular problems that they are not mindful of the technical requirements applicable to all operating room personnel. In this particular, most nurse anesthetists conform to surgical technic. However, in this group, there are exceptions to whom apparently the main purpose of the cap is to serve as an insignia of their position or even of their particular school.

Unexplained wound infections still occur, though decreased in incidence and severity by various technical improvements and antibiotic therapy. Precautions to prevent contamination from scalp hair should be observed as are other basic requirements of aseptic technic.

*Reprinted with permission from the February, 1957, issue of *Surgery*.
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Investigations on Adsorption of Benzalkonium Chloride U.S.P. by Skin, Gloves, and Sponges*

By Ruth B. Kundsin, M.A., and Carl W. Walter, M.D.**

Many questions submitted to HOSPITAL TOPICS concern quaternary ammonium compounds. This timely article provides valuable information on the subject.—THE EDITORS.

• The wide clinical use of benzalkonium chloride U.S.P. as a germicide makes the investigation of its adsorption on articles immersed in it of practical, as well as theoretical, significance. Sporadic instances of isolation of bacteria from solutions supposedly containing benzalkonium have occurred. Subsequent tests on isolated organisms have shown them to be sensitive to the quaternary, indicating that their survival may have been due to a depletion of the germicide from the original solution.

A number of investigators have described the adsorption of quaternaries upon textiles. Goldsmith et al.[1] reported that chlorine and benzalkonium chloride are removed from solution by wool and cotton fabrics to a degree, depending on original concentrations. Fischer and Seidenberg[2] noted a definite correlation between antibacterial activity of water-soluble substances and their affinity for wool, a greater affinity representing a higher bactericidal action. Two quaternary compounds, Sapamine KW Concentrate (quaternary ammonium salt of diethylaminoethylamide hydroacetate, Ciba) and Desogen (dimethyl-[2-*N*-methyldodecanamidoethyl] [phenylcarbamoylmethyl] ammonium chloride, Geigy) were among those investigated. Latlief et al.,[3] primarily concerned with residual bacteriostatic action of quaternary-treated diapers, found that time and temperature of exposure, as well as concentrations of the quaternary in solution, were important factors in securing a sufficiently high adsorption to inhibit ammonia production from urea by Proteus mirabilis for definite periods. Since 1937, the substantivity of quaternary ammonium salts has also been appreciated in the textile industry, where processing for water repellence and antistatic properties includes their use.[4]

The purpose of this study was to determine how much quaternary is adsorbed by articles such as gauze sponges, cotton balls, and rubber gloves. This information would provide a guide to the preparation of solutions of sufficient concentration to ensure a bactericidal residual in the liquid in which these articles are immersed.

The amount of quaternary removed from solution by skin of the hands and of the back was also determined. The practical implications of this information on preoperative skin disinfection are obvious.

METHOD

The two-phase titration method, as described by Lewis and Herndon,[5] was used to determine the amount of quaternary in solution before and after immersion of articles. The advantages of the two-phase method are rapidity and simplicity; the only equipment necessary is a buret and volumetric pipettes. A solution of methylene blue is added to the benzalkonium chloride solution; chloroform is then introduced, with the resultant formation of two layers. Upon titration with a standardized dodecyl (lauryl) sodium sulfate solution, the excess anionic detergent forms a chloroform-soluble dye complex. At the end-point the colors in the two layers are the same. Lewis and Herndon[5] attribute a precision to this procedure of 2 parts per million variation from the mean over a range of 4 to 1000 parts per million.

Various materials were immersed in benzalkonium chloride solution for different periods of time. Since the volume of solution was known, the amount of compound taken out of solution could be calculated readily.

The substantivity of quaternary on the following materials was measured:

1. Zobec sponges, 2 by 2 in. (Johnson & Johnson)
2. Gauze sponges, 8 by 4 in., 12-ply (Johnson & Johnson)
3. Brown milled smooth rubber gloves, size 7½ (The Seamless Rubber Co., New Haven, Conn.)
4. Cotton balls, plain
5. Cotton balls, gauze-covered
6. Viscose rayon balls (Johnson & Johnson)
7. Hands
8. Skin of the human back

Measurement of the adsorption of quaternary by human skin was accomplished by layering known volumes of solution over an isolated area of skin. The isolation was effected by a vacuum seal about the periphery of a hole in a metal template.

RESULTS AND COMMENT

Adsorption is a phenomenon which depends on the attractive forces between atoms on the surface of the adsorbent (in this case, textile, rubber, skin) and the atoms of the material adsorbed, i.e., the positively charged cation of the quaternary ammonium salt. How this phenomenon is affected by various surfaces, and what influence temperature, concentration, and duration of contact have, are indicated in the accompanying tables.

The amount of benzalkonium chloride adsorbed onto articles commonly immersed in such solutions is indicated in Table 1. The large sponge adsorbed almost six times the amount adsorbed by the small sponge; however, on a per gram basis, the adsorption is comparable: 3.2 and 3.7 mg. per gram, respectively. Viscose rayon balls showed an extraordinarily high substantivity on a per gram basis as compared with cotton. Goudie[6] states that the substantivity of viscose rayon fiber

*Reprinted with permission from the *A.M.A. Archives of Surgery* 75:1036-1042, December, 1957.

**From the Peter Bent Brigham Hospital, Boston. Mr. George Tucker gave technical assistance. This work was supported in part by a grant from the Sterling-Winthrop Research Institute.

is 18.1 to 20.0 mg. of quaternary per gram from solutions ranging from 1:1500 to 1:500.

The figure for brown milled smooth rubber gloves was 41 mg. per glove. Simple arithmetic reveals that 65 sponges (8 by 4 in.), 12 pairs of rubber gloves, or 56 viscose rayon balls in a liter of 1:1000 solution can conceivably deplete the solution of quaternary. In actual practice, however, it is not feasible to place so many objects into 1 liter of solution; furthermore, the concentration of quaternary decreases with each addition, resulting in subsequently lower uptake. Nevertheless, substantivity of quaternary must be taken into consideration when making up solutions, so that a sufficiently high residual may be present in the immersing liquid for germicidal effect. Excess volume alone is insufficient protection where solutions are reused.

In order to approximate conditions of use, 100 Zobec sponges (2 by 2 in.) were placed into 750 ml. of an 0.134 percent solution (1:746) of benzalkonium chloride. After immersion for 72 hours, the concentration of the quaternary was titrated to be 0.094 percent (1:1064), a more than adequate residual.

The bactericidal action of a 1:750 solution in contact with cellulose was determined by inoculating each of six Zobec sponges with 1 ml. of $3X10^8$ suspension of Escherichia coli 198. All six sponges were then immersed in 100 ml. of 1:750 solution; the bacteria were destroyed within five minutes. This inoculum represents an extreme case of contamination, one which would not ordinarily be encountered.

As a result of these investigations, quaternary ammonium salt solutions in common use at the Peter Bent Brigham Hospital were modified to 1:750, rather than 1:1000, to allow a margin of safety.

A considerable quantity of quaternary is adsorbed by hands, as shown in Table 2. This process is a function of time. Within three minutes 36.8 percent of the amount taken up in 90 minutes is adsorbed.

Tables 3 and 4 indicate the results obtained with gauze sponges and viscose rayon balls over a period of 48 hours at room temperature. One set of each immersed in a refrigerated solution (4° C.) and kept at that temperature for 48 hours showed a considerable difference from that at room temperature, a difference of 5.78 mg. per viscose rayon ball and 3.15 mg. per gauze sponge.

The effect of concentration can be seen in Table 5, where increasing concentration simultaneously increased substantivity. Table 6, where skin on the back of three subjects was used, also indicates a similar concentration effect.

It is significant that smaller amounts of quaternary are adsorbed as concentration decreases. Re-

(Continued on page 112)

Table 1. Adsorption of Quaternary (Benzalkonium) from Solution on Immersed Objects*

Object	Benzalkonium Chloride Concentration, Mg./Ml.		Benzalkonium Adsorbed, Mg.	
	Before Immersion	After Immersion	Per Object	Per Gram
Zobec sponges (50)	1.28	1.13	2.6	3.7
Sponges 8X4 in. (10)	1.28	1.10	15.3	3.2
Rubber gloves, brown (3 pairs)	1.26	0.97	41.1	....
Cotton balls, uncovered (15)	1.27	1.16	6.2	6.8
Cotton balls, covered (15)	1.27	1.10	9.6	3.9
Viscose rayon balls (10 large)	1.00	0.79	17.9	17.6

*Table 1 shows the uptake of quaternary in a 36- to 48-hour period of exposure at room temperature. The concentrations before and after immersion are indicated. In all cases, the volume was 850 ml. of solution for the number of objects indicated in parentheses.

Table 2. Quaternary Adsorbed by Hands Immersed in a Solution*

	Time of Exposure, Min.	Concentration of Benzalkonium, Mg./Ml.		Benzalkonium Adsorbed per Hand, Mg.
		Original	Final	
Subject 1	3	1.030	0.995	14.88
	10	0.960	0.920	17.00
	30	0.940	0.880	25.50
	90	0.955	0.860	40.38
Subject 2	3	1.272	1.238	14.45
		1.280	1.245	14.88
	30	1.285	1.213	30.60
	90	1.274	1.179	40 38
Subject 3	3	1.280	1.238	17.85
		1.279	1.225	22.95
	30	1.276	1.178	41.65

*Both hands were immersed up to the wrist in 850 ml. of benzalkonium chloride solution. Hands were previously dipped into 95% ethanol to defat the skin surface and also to present uniformly treated skin for immersion.

Table 3. Rate of Adsorption of Benzalkonium Chloride on Gauze Sponges*

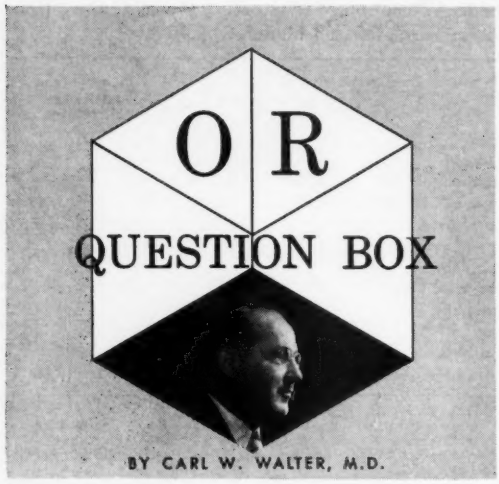
Temperature	Exposure Time	Concentration of Benzalkonium Chloride, Mg./Ml.		Quatenary Removed, Mg.	
		Original	Final	Per Sponge	Per Gram
25° C. (room temperature)	10 min.	1.000	0.905	8.08	1.58
	30 min.	1.000	0.875	10.63	2.08
	1 hr.	1.000	0.885	9.78	1.91
	7 hr.	1.000	0.830	14.45	2.82
	26 hr.	1.000	0.785	18.28	3.57
	48 hr.	1.000	0.783	18.45	3.60
4° C.	48 hr.	1.000	0.820	15.30	2.99

*Gauze sponges were 8X4 in., 12-ply (Johnson & Johnson). For this series, 10 sponges were immersed in 850 ml. of solution.

Table 4. Rate of Adsorption of Benzalkonium Chloride on Viscose Rayon Balls, Large*

Temperature	Exposure Time	Concentration of Benzalkonium Chloride, Mg./Ml.		Quaternary Removed	
		Original	Final	Per Ball	Per Gram
25° C. (room temperature)	10 min.	0.950	0.875	6.38	6.27
	30 min.	0.960	0.890	5.95	5.86
	1 hr.	0.990	0.920	5.95	5.86
	6 hr.	1.010	0.920	7.65	7.53
	24 hr.	0.995	0.815	15.30	15.06
	48 hr.	1.000	0.790	17.85	17.57
4° C.	48 hr.	1.001	0.859	12.07	11.88

*Viscose rayon balls (Johnson & Johnson). For this series, 10 viscose rayon balls were immersed in 850 ml. of solution.



Assisted by Dorothy W. Errera, R.N.

Q. Is it hazardous to have nylon mattress covers on beds into which T & A's are put after having ether anesthesia?

A. There is no contraindication to nylon mattress covers on the postoperative bed.

Q. We are having difficulty getting our surgery linen mended as we think it should be done when there are holes. The laundry supervisor has suggested the use of mending tape. Do you think that would be safe as far as sterilization is concerned, and would it withstand sterilization?

A. I can see no contraindication to using mending tape on torn linen. Since it is sealed in place with heat, I would expect it to withstand sterilization.

Q. Can an electric oven be left on all night?

A. An electric oven can be left on indefinitely.

Q. How often should cans of dry sponges be reautoclaved?

A. Immediately and every time the lid is removed.

Q. In preparation of syringes, would it be possible to put syringes in a paper bag when using steam sterilizers as dry-heat sterilizers?

A. Syringes packaged in bags for sterilization in dry heat would require longer exposure than four hours, in that more time would be required for sufficient heat to cross the bag's surface and be carried by the dry air within the bag to the syringe.

Q. Isn't wetting catgut in a saline basin a dirty technic, and doesn't it weaken the catgut?

A. Wetting catgut affects its tensile strength to the same degree as implantation into tissues. Contamination is likely if it is wet from a saline basin into which contaminated instruments or sponges are dropped. Also, a saline basin which has been exposed to room air for an appreciable length of time is likely to be contaminated with air-borne bacteria.

If the surgeon requests that his catgut be moistened to facilitate handling, it is better moistened with a germicidal solution. Be sure the solution is benign in tissues.

Q. How long would you consider ampoules sterile which are sterilized by steam and then kept stored in jars without any solution?

A. Stock supplies of sterile goods are contaminated once the first item has been removed. The hazard of air-borne contamination—including contamination resulting when personnel speak over open containers—makes it almost impossible to justify this means of storing and dispensing sterile goods. Ampoules of heat-stable drugs are best sterilized in glass tubes or cellophane tubing—individually packaged and dispensed as needed.

Q. An instructor demonstrated an eye dressing, and at the end of the demonstration, she took clean forceps from the initial dressing tray to remove a square of Jellonet from the tin. I felt this action contaminated the stock Jellonet. What do you think?

A. A sounder technic would be to remove the Jellonet with a clean, sterile forceps and place it on the dressing tray before any part of the soiled dressing is removed.

Q. A sterile lifting forceps was used to remove a piece of Vaseline gauze from its container. Is this forceps safe to use then for regular purposes?

A. The residual grease left on the jaws of transfer forceps used for picking up such things as Vaseline gauze may interfere with the disinfecting action of the solution in which the forceps are stored —if that solution has an aqueous solvent. Eventually bacteria will grow, thrive, and contaminate the forceps and its container. A better technic is to use a single sterile hemostat or forceps when handling anything covered with grease or oil.

Q. You recently said that "tap water in most communities is sterile. Organisms can seldom be cultured from tap water in well-organized communities." If this is so, why do we bother to use distilled water when making up germicides, and why do we quarantine the solutions?

A. The mineral content and the purity of tap water are two different things. While the latter may be compatible with the dispensing and use of disinfecting solutions, the former is in most instances highly incompatible. Calcium and magnesium salts in some waters will render the quaternary ammonium compounds almost useless as bactericides.*

While it is true that certain other germicidal compounds are efficient when mixed with tap water, it is also true that even natural or soft waters contain enough mineral content to cause a deposition of crust, scale, or film on objects immersed in these solutions.

*See abstract, "Bactericidal Efficiency of Quaternary Ammonium Compounds in Different Waters," HOSPITAL TOPICS, May, 1957, Page 99.—Ed.

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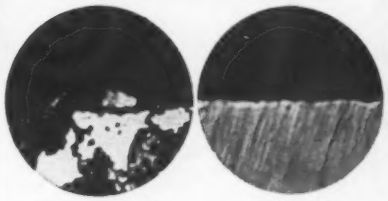

ORDINARY BLADE STERISHARP

One of a series of tests which demonstrated the superiority of SteriSharps in hospital use subjected a SteriSharp and an ordinary surgical blade to autoclaving—under 18 pounds of pressure at 250°F.—for 30 minutes. The ordinary blade (left) was severely corroded and stained, and the edge became rough and impaired. The SteriSharp (right) did not corrode. The cutting edge was unaffected. Actual photos shown are magnified 1,000 times.

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(Continued from page 109)

use of a solution therefore results in less quaternary removal per object. Thus, assuming that one starts with 1.256 mg. per milliliter, 10 sponges (8 by 4 in.) would remove 16.66 mg., resulting in 1.060 mg. per milliliter. At the lower concentration, an additional 10 sponges would remove 16.30 mg. per sponge. Thus, when one has reached a concentration of 0.2 mg. per milliliter, or 1:5000, only 5.5 mg. is removed per sponge.

Goldsmith and Latlief[7] have reported that adsorbed quaternary can also be desorbed, depending on the concentration of compound in the fabric and also on the nature of the fabric. Wool and cotton, both containing 13.3 mg. per gram, lost 15 percent and 50 percent quaternary, respectively, when placed in distilled water.

To determine whether sufficient quaternary remains on sponges to give a bactericidal effect after rinsing them in water, the following experiment was conducted: Fifteen Zobec sponges were immersed in 250 ml. of a 1:1000 solution for 96 hours. The sponges were removed by means of a sterile forceps; excess liquid was expressed by twisting the sponge with the forceps. After one vigorous rinsing in 1000 ml. of sterile distilled water, an inoculum of $1X10^6$ organisms (E. coli 26 ATCC) per sponge was destroyed within two minutes.

Table 5. Adsorption of Benzalkonium by Gauze Sponges from Solutions of Varying Concentrations*

Concentration of Benzalkonium, Mg./Ml.		Quaternary Adsorbed per Sponge, Mg.	Percent Reduction
Original	Final		
1.256	1.060	16.66	15.61
1.008	0.819	16.07	18.75
0.887	0.716	14.54	19.28
0.777	0.626	12.84	19.43
0.643	0.514	10.97	20.06
0.390	0.296	7.99	24.10
0.263	0.185	6.63	29.66
0.135	0.080	4.68	40.74

*This table indicates the amount of quaternary adsorbed by gauze sponges at a number of concentrations. Ten sponges were immersed in 850 ml. of solution for 41 hours.

Table 6. Quaternary Adsorbed by Skin of Back*

	Benzalkonium Concentration, Mg./Ml.		Benzalkonium Adsorbed per Sq. Cm. Skin, Mg.
	Original	Final	
Subject A	1.293	1.251	0.034
	0.986	0.955	0.025
	0.812	0.785	0.022
	0.810	0.771	0.032
	0.616	0.594	0.018
	0.502	0.486	0.013
	0.260	0.248	0.010
Subject B	0.988	0.964	0.020
	0.510	0.487	0.019
Subject C	0.996	0.965	0.025
	0.664	0.645	0.016
	0.329	0.307	0.018

*Using a special brass template, 80 ml. of quaternary solution in varying concentrations was applied to 97.8 sq. cm. of skin for a period of 30 minutes.

After two vigorous rinsings, 0.14 percent remained at the end of four minutes, using the same inoculum. This represents a reduction of 99.86 percent. Desorption occurs sufficiently to decrease germicidal activity, but the quaternary molecules are preferentially adsorbed to cotton fiber to the extent that vigorous rinsing does not completely elute them. Furthermore, this attachment does not preclude their participation in bactericidal activity. Lecithin and polysorbate 80 U. S. P. (Tween 80) in a buffered solution (pH 7.2) were used to inactivate the quaternary after the desired period of exposure.

The highest dilution permissible in benzalkonium chloride solution which gives an adequate margin of safety and yet affords a tangible lower limit for residual concentration can be set at 1:5000 dilution. For E. coli, a suspension of $5X10^7$ is destroyed within five minutes at 27° C. in 1:32,000 dilution in purified water U. S. P. Lawrence[8] reports that a 1:18,000 dilution will destroy Staphylococcus aureus within 10 minutes at 20° C.; a 1:27,000 dilution destroys E. coli within 10 minutes at 20° C., both in aqueous solutions. Dennis[9] states that a 1:30,000 dilution is adequate for S. aureus, and 1:7500 for Pseudomonas aeruginosa, at room temperature.

Thus, a 1:5000 dilution (0.2 mg. per milliliter) kills all known vegetative cells except tubercle bacilli within 10 minutes. Solutions weaker than this should be discarded.

Recommendations for the use of this quaternary should also include, therefore, a detailed list of the substantivity of articles commonly immersed in such solutions. In this way a superior germicide will be used with maximum efficiency, and with correspondingly greater understanding of the dynamics of its action.

Other interfering substances, such as metallic cations and organic material,[6, 10, 11] which have been reported as factors altering the rate of disinfection of quaternaries, are not discussed. This omission is not due to a lack of appreciation of these factors, but, rather, is occasioned by the belief that hospital solutions freshly prepared with purified water U. S. P. do not contain enough of these substances to present a problem.

Another factor which we have not investigated, but which has been reported by Fogh et al.,[12] is the adsorption of quaternary upon glassware. They have found that scratched glassware adsorbs more quaternary than new, unscratched glassware. Six scratched test tubes reduced the concentration of a 1:50,000 solution of cetylpyridinium chloride by 27 percent.

These authors also reported that vigorous shaking resulted in foam formation, which lowered the concentration of the quaternary in the liquid phase by 9.8 percent with a concomitant increase of quaternary in concentration in the foam. They were, however, dealing with an extremely high

dilution of the compound, 0.02 mg. per milliliter. The solution of quaternary that one uses for bactericidal purposes, 1:1000, 1 mg. per milliliter, is of high enough concentration that the adsorption by the vessel itself is negligible, unless it is badly scratched.

Time, temperature, and concentration have been found to be determining factors in adsorption of benzalkonium (Zephiran) chloride U. S. P. by objects immersed in such solutions.

It is recommended that [for] original concentrations of this quaternary in use dilutions be made sufficiently great (1:750) to make allowances for adsorption upon immersed articles and leave continued bactericidal activity in the residual solution.

The high dilution 1:5000, which destroys all known vegetative cells except tubercle bacilli within 10 minutes, is recommended as the limiting residual dilution.

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Dr. Walter Schedules Institute in Virginia

An institute for operating room nurses will be given by Carl W. Walter, M.D., at the Medical College of Virginia, Richmond, from April 28 to May 3.

Further information may be obtained by writing to Mrs. Dorothy W. Errera, R.N., Institute for Operating Room Nurses, 721 Huntington Ave., Boston 15, Mass.

O.R. Reprints Available

Many of the articles which have appeared in the O.R. Section are available as separate reprints. A partial list is shown below. Reprints will be on display on the HOSPITAL TOPICS booth at the AORN Congress in Philadelphia, February 10-13. They can be ordered by mail from HOSPITAL TOPICS, 30 W. Washington St., Chicago 2, Ill.

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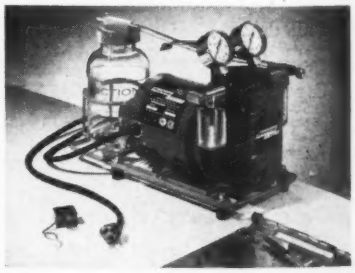

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Now everybody's talking...

about... *closer control of cross infection in every part of the hospital*

Wider recognition of the current problem of hospital-acquired infections is focusing new attention on ways and means of reducing this hazard to good patient care. Hospital and medical society meetings—and hospital, medical and surgical journals—are daily shedding new light on the varied aspects of the overall problem.

In many hospitals, a special "committee on cross infection" has been appointed to review practices and procedures. In others, each department head is studying closely his or her own methods of operation. Few hospitals exist which are not giving some special thought to this highly current problem.

Out of this critical evaluation has grown an awareness that environmental asepsis is a major weapon for cutting cross infection to a minimum. Application of continuous disinfection procedures from operating rooms through food service and laundry areas can be the means to changing the hospital's entire experience with hospital-acquired respiratory, intestinal, urinary or postoperative wound infections.

Take floors, for instance

Floors offer a great opportunity for furthering the spread of infection. Microorganisms settling to the floor are redispersed on dust particles or tracked through the hospital on shoes. Walls and ceilings as well can be reservoirs of potential infection. Lehn & Fink disinfectants not only kill all the most common pathogens on contact but are continuously active against new contaminants touching the disinfected surface for as long as a week later.

While the patient is there

Concurrent disinfection is practical whether or not the patient is "isolated." Wiping of furniture and fixtures and damp mopping of floor, with a disinfectant, stop air- and floor-borne microbes at the source.

In the operating room

Lehn & Fink disinfectants have many applications here. Among them: mopping floors; cleaning grills, ducts, and coils of air conditioners; as standard equipment on the scrub-up cart; as a germicidal dip to remove gross contamination from gloves before their removal; to gather instruments into enroute to sterilizer.

Other L & F disinfectant applications are many: for disinfection of instruments with lens systems, to wipe and store thermometers, to sanitize utensils, etc. In all instances, action is bactericidal, fungicidal and tuberculocidal.

Which L & F disinfectant?

Lysol®, O-syl® and Amphyl® do the same disinfecting job. Any one of them kills bacteria, fungi, and TB bacilli efficiently, but each has individual characteristics.

Lysol was far ahead of its time when introduced over sixty years ago. Recently the formula was improved; the odor was lightened and toxicity was reduced so that the "poison" label is no longer needed. Many hospitals prefer Lysol because of its long reputation for dependability. The characteristic odor is preferred by many for psychological reasons or as an indication that disinfection with Lysol has just been done.

O-syl is preferred by hospitals wanting all the germicidal efficiency of Lysol but without the odor. It is practically odorless when diluted for use. Like Lysol, O-syl is highly concentrated. Only a 1% solution of either (1 part to 100 of water) is needed for most applications.

Amphyl is also odorless when diluted for use. Convenience and low cost due to its high concentration often make Amphyl the disinfectant of choice. Amphyl is twice as powerful as Lysol or O-syl but does not cost twice as much. A ½% solution (1 part in 200 of water) is sufficient for general disinfection so that the cost per gallon of "use dilution" is less than with Lysol or O-syl. When expected contamination is great, as in TB or isolation wards, Amphyl is often preferred.

Let's talk about it

Solving the problem of environmental infection has been the business of Lehn & Fink since 1874. Solving such problems arising in your own hospital usually takes more than talk—but perhaps you would like to discuss them with our technical specialists. We can function as a part of your "committee on control of cross infection," perhaps suggest procedures, and supply informational material for teaching purposes. At any rate, please ask us. Specially trained field service representatives as well as the technical staffs in our New York office and in our laboratories at Bloomfield, New Jersey, are available for consultation.

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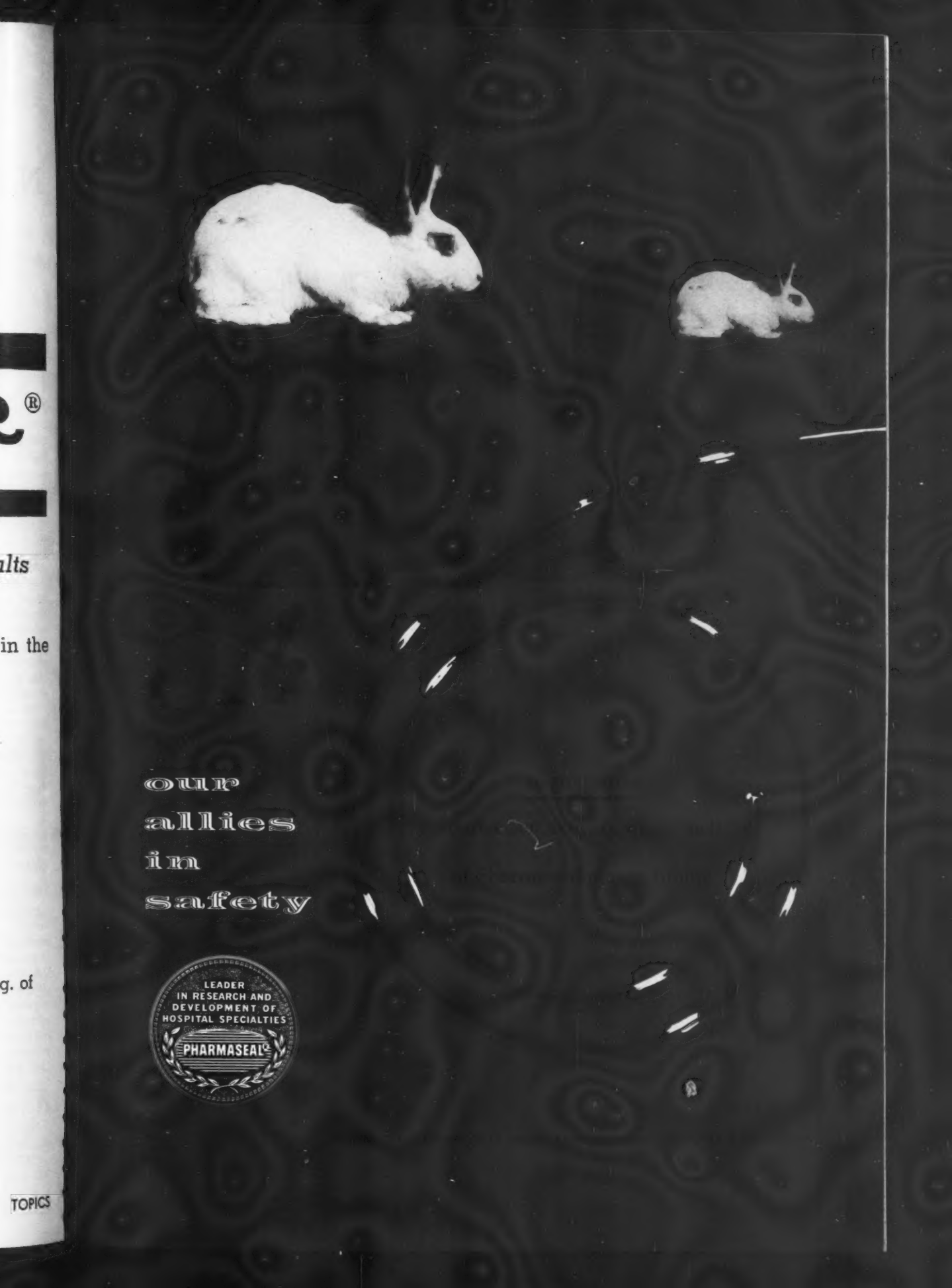
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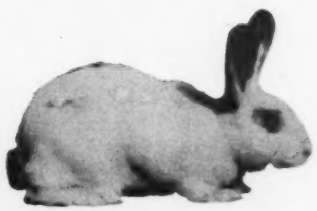

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clinical notes

Test Antibacterial Effect Of Antibiotic Combination

Combining erythromycin* and chloramphenicol† does not enhance the antibacterial activity of the antibiotics over what could be expected of them individually, but may delay development of erythromycin resistance in staphylococci, state Jones and Finland in the *New England Journal of Medicine* 257:744-48 (October 17, 1957).

The authors studied the antistreptococcal and antistaphylococcal activity of the plasma of six normal subjects after ingestion of single doses of either 500 mg. or 1,000 mg. of erythromycin or chloramphenicol or equal amounts of both agents. They found that erythromycin gave the greatest activity and chloramphenicol the least, while the mixtures gave only intermediate values. Larger doses produced greater activity.

Study Compares Effects Of Asian Flu Vaccines

Effectiveness of vaccines against Asian influenza, studied in over 12,000 test subjects, ranged from 42 to 67 percent, according to a report by members of the Commission on Influenza of the Armed Forces Epidemiological Board, in the *Journal of the A.M.A.* 165: 2055-58 (December 21, 1957).

Four groups of investigators compared the effects of varying doses of either monovalent or polyvalent vaccines in 12,002 test subjects with results in 9,363 contratest subjects who received placebo injections. Estimates of effectiveness were based on relative respiratory illness rates.

Preliminary results indicate that doses of 200 CCA units of vaccine, given subcutaneously, were sub-optimal although clinical trials showed that amount gave an important degree of protection. Doses of 400 CCA units or more gave higher and more uniform antibody levels. The commission recommends that a vaccine of that dosage be used for primary immunization against Asian flu.

Determine Dependence On Barbiturates

A significant degree of physical dependence can be observed in patients receiving secobarbital and pentobarbital, but withdrawal symptoms differ from those following withdrawal of opiates, state Fraser, Wikler, Essig, and Isbell in the *Journal of the A.M.A.* 166: 126-29 (January 11, 1958).

The authors studied 50 volunteer subjects who took secobarbital, and 11 who took pentobarbital, over periods ranging from 32 to 365 days, and at several dosage levels. Symptoms following abrupt withdrawal were insignificant in patients on minimal dosage but severe in those on maximal dosage.

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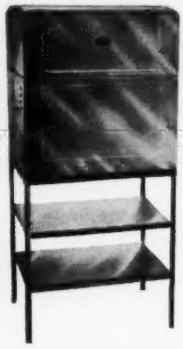

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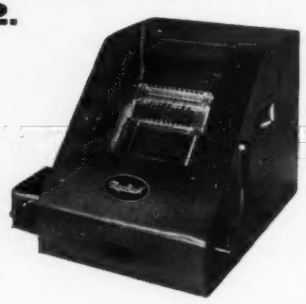

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Process 700-1,000 needles an hour; clean *all* vital parts of needle. Twenty-second wash-rinse cycle controlled by fully automatic timer. Increase efficiency, eliminate burring, protect against hepatitis and dermatitis by handling plastic manifold holding 12 needles instead of handling needles themselves. Simple installation requires no air tubes, no bulky gas tanks.

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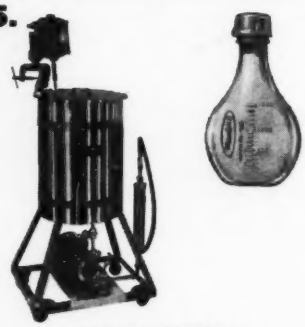
MacBick offers a complete line of adjustable shelf and fixed shelf CSR utility trucks, flask drain trucks, portable kit tables, custom designed work stations, counterwork and storage shelving.

5.



SOLUTION PREPARATION EQUIPMENT

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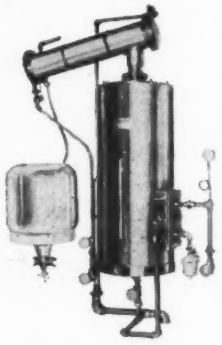

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Students' Study of Supplies, Cost, Beneficial to Hospital

By Betsey R. Carroll, R.N., with Helen Sims*

Central Supply

• Two senior nursing students at the University of Kansas Medical Center made a dramatic study of medical economics last October and shared the results of their investigation with their classmates, their instructors, and the general staff of the 600-bed hospital.

Students Judy Lippitt and Janice Steinbach chose as their senior project a four-week elective term in central supply service, because they felt they needed to learn more about professional supplies and equipment. Mrs. Steinbach's husband was a medical student at the University of Kansas, and she planned to help him establish a practice in a small town in Western Kansas. Miss Lippitt was engaged to marry an intern, and she planned to help him through his residency by working as a nurse.

The author, administrative supervisor in the central service department for some nine years, and her entire department of 35 employees, co-operated with the students in every way they could. The students kept them "jumping" with their eagerness to learn, to read, to investigate.

The first two weeks were spent in working on the basic procedures of sterilizing, dispensing, principles of preparation, and purchasing. This was not enough. The girls wanted to "dig deeper." With mounting enthusiasm, they learned the facts about initial costs, waste, utilization, and emergency measures.

"This story must be told," they declared. "It isn't enough for just us to know." So tell it they did. They "talked it up" with their classmates, their instructors, staff nurses, and medical students. Then they put it in writing, making effective posters as visual aids, and preparing cost analyses.

Formal presentation of the project was made in a ward-administration class—but it was more than a routine class. Present were students, instructors, and general staff of the hospital.

The presentation was divided between Miss Lippitt and Mrs. Steinbach. Miss Lippitt explained the new trends, with emphasis on professional time-saving devices, increased comfort to the patient, and maintenance of hospital economics.

Mrs. Steinbach stressed waste with caustic "facts and figures" posters, compared the old with the new methods, and gave a cost analysis of a hypothetical hospital case. Case "X" revealed that the medical-surgical patient paid $702 in hospital bills for use of equipment and supplies with an initial cost of $1,615.90 to the hospital.

(Continued on next page)

Mrs. Janice Steinbach (r.) points to poster illustrating waste which results from carelessness in handling equipment. Looking on is Miss Smith, clinical instructor. Posters were presented at a class attended by students, instructors, and general staff.

*Mrs. Carroll is administrative supervisor, central service department, University of Kansas Medical Center, Kansas City, Kans., and Miss Sims is director of informational services.

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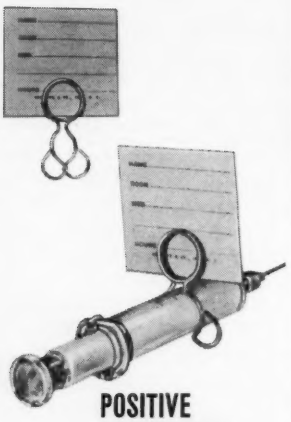

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Display depicting the trend toward time- and labor-saving devices, including disposable, sterile, prepackaged items, was assembled by Judy Lippitt.

CENTRAL SUPPLY continued

"We could have made the hospital expense even greater, if we had had time to dig deeper," Mrs. Steinbach said.

What has been the result of the project? Both students graduated the first of December, but the stimulus they created for awareness of central supply service is still going. Some of the new devices have been adopted and are standard. This conversion was accomplished with ready acceptance.

Furthermore, we believe that the realization of the cost of supplies and equipment has improved in the hospital. We wish we could have as enthusiastic a project every year in the department.

Conference Group Works To Solve CSR Problems

By Minnie M. Armstrong, R.N.*

• Nurses in the central service departments of Houston hospitals have had an active conference group for approximately four years. Though the active and potential membership is somewhat limited, because of the small number of nurses in central service work, a great deal has been accomplished toward promoting the group's objectives, which are:

• To promote better patient care.

• To study central service problems.

• To promote research on supplies.

• To promote efficient service.

• To promote standardization of supplies.

• To establish a means for exchanging ideas.

There are about 20 members from 10 hospitals. The meetings are held monthly (except in June, July, and August) at the various hospitals, on a week-day, from 2:30-3:30 p.m.

A real comradeship was developed among the members, which has promoted good public relations. There is no hesitancy in stating problems and expressing a desire for help in solving them. Even though a problem may not be solved immediately, discussing it helps, and many times an answer is found through such group discussion.

Some of the manufacturers, especially those who make surgical dressings, have expressed their gratification for the work done

*Supervisor, central service department, Hermann Hospital, Houston, Tex.

Nine of the members of the Houston Central Service Conference Group are shown above. They are (seated, l. to r.): Wilimae Hanson, Hermann Hospital; Hazel Kramer, central service department supervisor, Memorial Hospital; Theresa Stratman Davis, VA Hospital; (standing, l. to r.) Mary Kleinfelder, St. Joseph's Hospital; Sister Teresita, supervisor, St. Joseph's Hospital; Margaret Bourdon, supervisor, VA Hospital; Mary Smith, supervisor, St. Luke's and Texas Children's Hospitals; Minnie M. Armstrong, supervisor, Hermann Hospital; and Sister Michael Joseph, supervisor, St. Joseph's Hospital.

within the group toward standardization of surgical dressings. The challenge is still great in this phase of supplies. Much has been accomplished, but there is still much to be done.

Prepackaged dressings, which have come as a result of group research, are a boon to all concerned. Many more surgical dressings might be prepackaged and distributed sterile by the manufacturers, if hospitals would and could standardize upon dressings. Standardization would prove to be more economical and would promote better technics in handling dressings, which in turn would promote better patient care.

The prepackaged dressing is only one example of what might be done as a result of group research. Many better things for hospitals and patient welfare can and do have their beginning in a small group such as this, or in several such groups.

The program for our organization for 1957 was as follows:

January — "Safe and Efficient Usage of Oxygen" (including Linde Oxygen film).

February — Comparative study panel on "Economics and Advantages of the Disposable Enema."

March — "Increased Usage of Radioactive Minerals in Medicine: Nursing Care Precautions; Care of Equipment and Supplies and Waste."

April—Report on the Steriphane method of handling syringes and needles.

May — "New Plastics and Prepackaged Supplies."

September — "Committees and Channels of Communication As They Concern Central Service Departments."

October—Panel on intercommunications.

November — "Emergency Packs and Equipment."

December—Annual meeting and Christmas party.

Our group was set up as a conference group of District 9 of the Texas Graduate Nurses' Association. Therefore only members of that association may be voting members of the conference group. However, non-nursing personnel may be invited to attend sessions which nurse members believe will be interesting and helpful to them.

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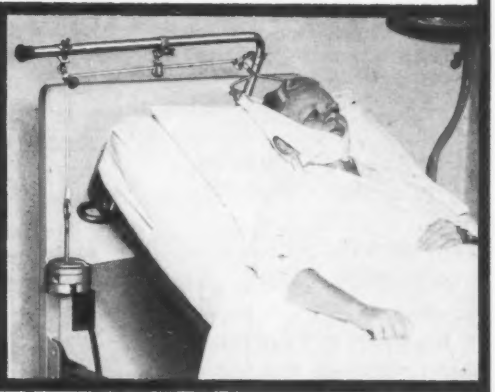

This outstanding new frame can be quickly attached to any hospital bed. Supporting base clamps to bed spring frame, which permits elevating the entire frame with the backrest while cervical traction remains unchanged. The unit can be set up, as shown, eliminating the need for moving bed out from wall. Or, pulley-bar can be extended over head of bed if more convenient. For pelvic traction the unit is set up at foot of bed with pulley-bar inverted for greater height. Easy to use, sturdily constructed, folds flat for storage, and it's inexpensive. No. 700. Write for complete information!

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CSR Group Formed In Kansas, Missouri

At right: Shown at "coffee break" are (l. to r.): Mrs. Betsey R. Carroll, University of Kansas Medical Center, Kansas City, Kans.; Doris Marker, Santa Fe Hospital, Topeka, Kans.; Charlotte McGrath, VA Hospital, Kansas City, Mo.; Helen Horvat, VA Hospital, St. Louis; Robert Romberger, Johnson & Johnson; Carroll Devine, Pharmaseal Laboratories; Dorothy Mercer, Mount Vernon (Mo.) Hospital; and Janet Randell, University of Missouri Hospital, Columbia.

● The Central Service Nurses' Association of Missouri and Kansas was organized at a recent meeting at St. Luke's Hospital, Kansas City, Mo.

Forty-four persons from both states attended the organizational meeting. The following officers were elected for the year 1957-58:

Chairman—Mrs. Betsey R. Carroll, R.N., adminstrative supervisor, central service department, University of Kansas Medical Center, Kansas City, Kans.

Vice-chairman — Gertrude Stumpf, R.N., administrative supervisor, central service, Kansas City (Mo.) General Hospital No. 1.

Secretary—Patricia Tolle, R.N., adminstrative supervisor, central service, Research Hospital, Kansas City, Mo.

Treasurer—Lois Collins, R.N., administrative supervisor, central service, Menorah Medical Center, Kansas City, Mo.

The business meeting was held in the morning. At the afternoon session Jean Stickles, R.N., director of nurses, St. Luke's Hospital, Kansas City, Mo., spoke on "What a Director of Nurses Expects from Central Service and What Central Service Can Expect from the Director." Mrs. Helen Reynolds, R.N., director of inservice education, Research Hospital, Kansas City Mo., spoke on "Inservice Education in a Central Service."

The bi-state group will hold an annual meeting. Local groups—four in Missouri and two in Kansas—will meet once a month.

The new organization is planning a central service institute, to be held June 4-6 at the Bellerive Hotel, Kansas City, Mo. Further details will be announced in March.

At left: Panelists on a discussion of common CSR problems were (l. to r.): Lois Collins, Menorah Medical Center, Kansas City, Mo.; Helen Horvat, VA Hospital, St. Louis; Harriett Milland, Grace Hospital, Hutchinson, Kans., and Sister Mary Giles, St. Mary's Hospital, Kansas City, Mo.

PERSONALLY SPEAKING

(Continued from page 71)

Jim Williams—has been appointed administrator, Tift County Hospital, Tifton, Ga., succeeding **George Hart.**

Charles R. Worthen—has been appointed administrator, Conecuh County Hospital, Evergreen, Ala. He was previously administrator, Washington County Hospital, Chatom, Ala.

J. Leo Wright, M.D.—will head the new cardio-pulmonary laboratory, Baptist Memorial Hospital, Memphis, Tenn. He has been an assistant on the staff of the Mayo Clinic, Rochester Minn., since 1956, and previously was a research fellow for the National Heart Institute and the Minnesota Heart Association.

VA Appointments

Prince P. Barker, M.D.—formerly director, professional services, VA Hospital, Tuskegee, Ala., has been named manager of the hospital, succeeding **Toussaint T. Tildon, M.D.,** who retired.

Sam Beanstock, M.D.—has been named manager, VA Hospital, Chillicothe, O., succeeding **Harry H. Botts, M.D.,** who retired. Dr. Beanstock was formerly director, professional services, VA Hospital, Lebanon, Pa.

Russell L. Hiatt, M.D.—formerly manager, VA Hospital, Fort Wayne, Ind., has been appointed manager, VA Hospital, Louisville, Ky., succeeding **Harvey C. Hardegree, M.D.,** who retired.

Michael H. Travers, M.D., formerly director, professional services, VA Hospital, Kecoughtan, Va., succeeds Dr. Hiatt as manager and director of professional services at the Fort Wayne hospital.

VA Nursing Appointments

Floyd Baker, R.N. — has become assistant chief, nursing service, VA Hospital, Dwight, Ill., where he was formerly a supervisor.

Fay Braden, R.N.—is now assistant chief, nursing service, VA Hospital, McKinney Tex., where she was previously a supervisor.

Mary Calnan, R.N.—has been appointed assistant chief, nursing education, VA Hospital, Clarksburg, W. Va. She was formerly an instructor, Beverly (Mass.) Hospital.

Ernest Denny, R.N.—has been appointed assistant chief, nursing education, VA Hospital, Lexington, Ky. Prior to transfer he held a similar post at VA Hospital, Northport, N.Y.

Ruth Frothingham, R.N.—has become assistant chief, nursing service, VA Hospital, Denver, where she was formerly assistant chief, night nursing service.

Kathleen McNamara, R.N. — has been appointed assistant chief, nursing service, West Side VA Hospital, Chicago. She was formerly a supervisor, VA Research Hospital, Chicago.

Margaret Meagher, R.N. — has been assigned as a general medical and surgical nursing specialist, VA Central Office Nursing Service, Washington, D.C. Prior to transfer she was chief, nursing service, VA Hospital, Wadsworth, Kans.

Elizabeth Ulrich, R.N.—has been appointed assistant chief, nursing education, VA Hospital, Washington, D.C. She was formerly assistant chief, nursing education, VA Hospital, Rutland Heights, Mass., and has returned to the service after a year's absence to further her education.

M. Marian Wood, R.N.—has become assistant chief, nursing education, VA Hospital, East Orange, N.J. Prior to transfer she was a nursing personnel standards specialist, VA Central Office Nursing Service, Washington, D.C.

New Officers

Charles S. Billings—executive director, Kansas Hospital Association, has been re-elected secretary-treasurer, Midwestern Regional Council, State Leagues for Nursing. The council, which met in Chicago in December, represents 12 states.

Mrs. Lucille Craig—office manager, Helena (Ark.) Hospital, has been elected president, Arkansas Chapter, American Association of Hospital Accountants.

Karey Fuqua — administrator, Southwestern Clinic Hospital, Lawton, Okla., was recently elected president of the Oklahoma Hospital Association. He succeeds **Jack. W. Shrode,** administrator, Wesley Hospital, Oklahoma, City.

Deaths

Fannie E. Diebeler, R.N.—78, died December 6. She held supervisory positions on the staffs of Western Pennsylvania Hospital, and Magee Hospital, both in Pittsburgh, during her 35-year nursing career.

William H. Holzapfel, M.D. — 84, former senior surgeon, Manhattan Eye, Ear, Nose and Throat Hospital, New York City, died December 16. He retired in 1956 after 52 years' private practice of ophthalmology.

Vida Latham, M.D., D.D.S. — 91, specialist in pathology, died December 17. In addition to her private practice in Chicago, Dr. Latham devoted considerable time to research and to medical and scientific writing.

On her ninetieth birthday, November 11, 1956, Dr. Latham was named "medical woman of the year." Honored many times by medical groups, she received a merit award from the Chicago Technical Societies' Council last November.

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All inquiries are strictly confidential.

TRADE TOPICS . . .

Louette McCloud, R.N., director, School of Nursing, Somerset Hospital, Somerville, N. J., and Nelson O. Lindley (second from right), administrator of the hospital, receive $500 check from the Ethicon Fund for Nursing Education. Making the presentation are George A. Kellogg (r.), vice-president, Ethicon, Inc., and T. W. Eckels, Ethicon director of sales.

Ethicon Education Fund Aids Seven Hospital Nursing Schools

Seven schools of nursing in hospitals serving the Somerville and Chicago employees of Ethicon, Inc., have received sums of $500 each from the Ethicon Fund for Nursing Education. The funds are designed to benefit the schools of nursing by providing loan funds, grants in aid, or scholarships for faculty or students.

The Ethicon fund was established when the company substituted a plain announcement for its usual Christmas greeting card. The announcement stated that the savings resulting from the elimination of greeting cards would be given to aid nursing education.

The seven hospitals benefiting from the plan, an experiment with the company this year, are the following: Somerset Hospital, Somerville, N. J.; St. Peter's General Hospital, and Middlesex General Hospital, both in New Brunswick, N. J.; Perth Amboy (N. J.) General Hospital; Muhlenberg Hospital, Plainfield, N. J.; Evangelical Hospital, Chicago; and Little Company of Mary Hospital, Evergreen Park, Ill..

Sales Staff Changes Made by Winthrop

Russell H. Krebs, formerly manager, Metropolitan New York sales district, Winthrop Laboratories, has been appointed manager of a newly-established sales division with headquarters in Oklahoma City. It will service parts of Texas, Arkansas, Kansas, and New Mexico as well as Oklahoma.

Sidney H. Willig, special hospital representative with the company since 1952, replaces Mr. Krebs in New York.

Vannevar Bush Elected Merck Board Chairman

Vannevar Bush, Ph.D., internationally known scientist and educator, has been elected chairman of the board of directors, Merck & Co., Inc., succeeding the late George W. Merck.

Dr. Bush has been a Merck director since 1949. He has served the Federal Government in several scientific posts, and was a central figure in the development of nuclear fission. Currently, he is also chairman of the corporation of Massachusetts Institute of Technology.

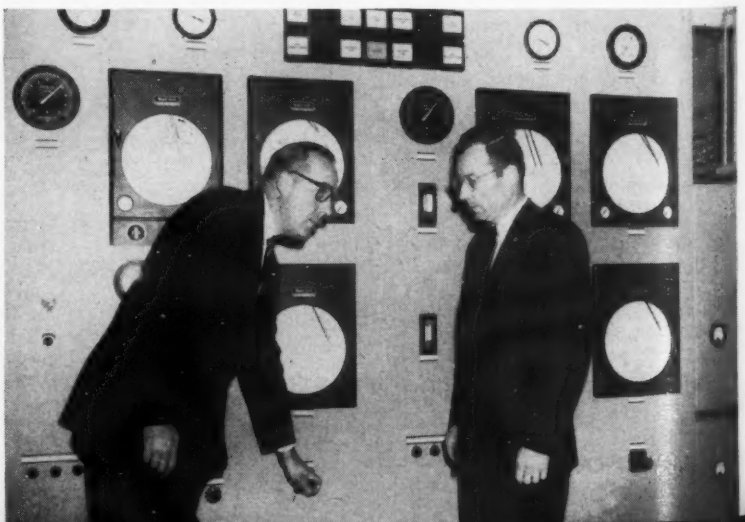
Another election announced by the Merck board is that of George W. Perkins as a director. He has recently been U. S. permanent representative on the NATO Council. Mr. Perkins was executive vice-president and director of Merck from 1927 to 1948.

The company has also named Stuart T. Henshall executive vice-president of its Merck Sharp & Dohme division. He has been controller of Merck since 1953.

Pfizer Names Two To Research Staff

Jurg A. Schneider, M. D., has been appointed director of macrobiology, Chas. Pfizer & Co., Inc., and S. Y. P'An, M.D., assistant director. Dr. Schneider was formerly director of physiology research at Ciba Pharmacetical Products.

William A. Lunger (l.), president, Ohio Chemical & Surgical Co., demonstrates custom-designed equipment to Stanley Smith, Cleveland, O. plant manager, at formal opening of company's two new gas manufacturing plants in Cleveland. Equipment and construction of the $1,000,000 facilities for manufacturing cyclopropane and nitrous oxide was supervised by the engineering department of Air Reduction Co., Inc., parent organization of Ohio Chemical. In both plants, a high degree of instrumentation has been incorporated into the manufacturing processes, and production and storage capacity increased.



Dr. P'An was formerly instructor in pharmacology, Columbia University College of Physicians and Surgeons, New York.

Mead Johnson Appoints Executive Vice-President

Mr. Sessions

Robert E. Sessions, management consultant, has been appointed to the new post of executive vice-president, Mead Johnson & Company. He will join Harold O. McCutchan, executive vice-president since 1955, as one of the company's two top general administrative officers under the company president.

Mr. Sessions is co-founder of the Philadelphia management consulting firm of Alderson & Sessions, and an authority in marketing and business administration.

SKF Foundation Reports Four-Year Grant Details

The Smith, Kline & French Foundation, independent philanthropic branch of Smith, Kline & French Laboratories, recently reported the details of its disbursement of $1,457,876, made during its first four years, from 1953 through 1956. Most of the grants were never announced publicly.

Largest portion of funds, $673,910, was given for basic research in medicine and related sciences, for projects unrelated to the pharmaceutical firm's commercial research interests.

Next in order were educational grants, $320,711; public charities and community improvement, $178,650; mental health, $157,500; and building and equipment funds, $127,105.

Wyeth Appoints Two Advertising Supervisors

Mrs. Elizabeth H. Jackson and John B. Sibley have been appointed advertising supervisors by Wyeth Laboratories.

Mrs. Jackson has been a member of the company's advertising department since 1950, and Mr. Sibley, since 1955.

Norelco Opens Atlanta Office

A new office has been opened at 3120 Maple Drive, N.E., Atlanta, Ga., by the Instruments Division, Philips Electronics, Inc.

Charles C. Hulsey is sales engineer in charge of the new facilities which will handle the complete line of Norelco instruments for the Florida, Georgia, and Alabama area.

Seamless Rubber Creates New Staff Position

Peter W. Floeckher has been appointed to the newly created position of director of customer service by the Seamless Rubber Co. He has been assistant manager of the company's specialty division for the past two years.

Bristol Labs Names New Vice-President

James D. McNitt has become vice-president and general manager of Bristol Laboratories, according to an announcement by Philip I. Bowman, Ph.D., recently elected president of the firm.

In his new post, Mr. McNitt will have charge of all company operations in Syracuse, N.Y. He was formerly vice-president in charge of manufacturing.

Ethicon Announces New Appointments

Mr. Zoller

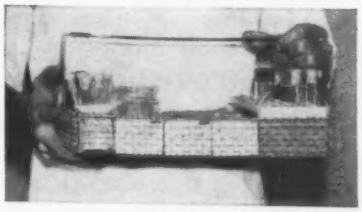
Howard F. Zoller has been elected vice-president in charge of product research by the Ethicon, Inc. board of directors. He has been director of product development and a member of the board of directors since 1955.

Ethicon has also announced appointment of James A. Cormack as sales manager, succeeding T. W. Eckels, who recently was named director of sales.

Mr. Cormack joined Ethicon in 1950 and subsequently became divisional manager, Great Lakes Division, and later field manager.

(Continued on next page)

Everyone



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Nine Companies Consolidated In Shampaine Industries

Mr. Shampaine

Formation of Shampaine Industries, through consolidation of nine companies, was announced recently by H. R. Shampaine, St. Louis, Mo., president of the new group.

The stock of each of the member companies is owned virtually 100 percent by the Shampaine Co., St. Louis, largest member of the new group. The other member companies of Shampaine Industries, each of which will retain its own identity in the consolidation, are: Shampaine Electric Co., New Rochelle, N. Y.; W. D. Allison Co., Indianapolis; Carrom Industries, Inc., Ludington, Mich.; Richard Philip Co., Professional Specialties, Inc., and, Crown Products, Inc., all of St. Louis; Harley Corp., Memphis, Tenn.; and O. E. M. Corp., East Norwalk, Conn.

The new enterprise, which will have headquarters in St. Louis, will act as management unit for the manufacture and distribution of hospital, medical and dental equipment and supplies of the member companies.

Details of the consolidation, formed to provide a cohesive financing, marketing, and research unit, were planned at a three-day meeting in St. Louis.

Johnson & Johnson Staffers Assume New Duties

Mr. Day

Mr. Wiley

A. B. Wiley, Jr., has been named regional manager for Johnson & Johnson's eastern hospital region. The area includes the eastern, middle Atlantic, southern and central divisions.

James O. Day has been appointed manager of the eastern hospital division, succeeding Mr. Wiley. Mr. Day formerly served the company's Connecticut hospital division.

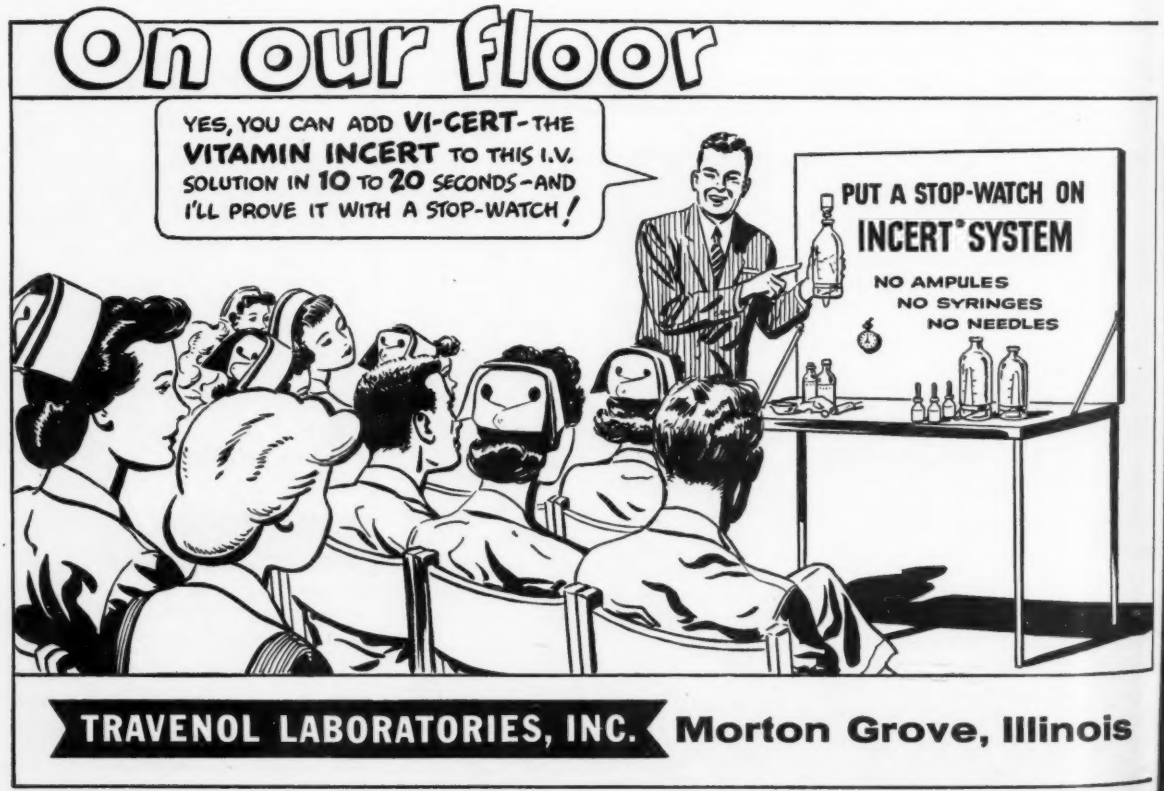
Homer Higgs Announces Personnel Changes

Dick Wright has become vice-president, Homer Higgs Associates, Inc., and John Russ, Jr., has been named by the company as sales representative for the New England area.

News Briefs

John Gabel—has transferred to Wilmot Castle's Rochester (N. Y.) sales office as manager of all hospital sterilizer and light sales. A member of the company eight years, he was formerly manager of the New York City office.

V. D. Mattia, Jr., M.D.—has been appointed director of medical research for Hoffmann-La Roche, Inc., succeeding E. L. Severinghaus, M.D., who has retired. Dr. Mattia was formerly director of medical information.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Lowell O. Randall, Ph.D.—has been named director of pharmacology for Hoffmann-La Roche Inc. He joined the firm in 1946.

The Diversey Corp.—Chicago, has purchased a five-building plant in Waco, Tex., which will be the new office of the company's Southwest district. The 20-acre property includes two warehouses, an insecticide plant, and an air-conditioned office building.

Robert L. Hill—former sales representative in Tacoma, Wash., for Eaton Laboratories, has been named the company's Northwest district manager.

W. Stanton Halverson, Jr.—Don Baxter, Inc. marketing manager, has been elected vice-president of the firm. He has been with the organization 16 years.

Alfred W. Bays — 81, president, Abbott Foundation, and retired general counsel, secretary, and director of Abbott Laboratories, died December 22.

Rhys M. Jones—41, public relations representative for Abbott Laboratories, died January 11.

Professional Personnel Needed For Polio Patient Care, Research

Additional professional personnel are needed to provide adequate service to polio patients and to extend research programs, the National Foundation for Infantile Paralysis stated recently.

Emphasizing the demand for such personnel, the foundation pointed out that since 1930, it has authorized almost $29,000,000 to further professional education in an effort to supply qualified people.

Since 1940, the foundation has provided grants to universities to expand teaching programs, and to agencies and associations to encourage improvement of educational standards and expansion of services. Concurrently, funds have been appropriated for fellowships and scholarships to add to the total pool of professionally qualified personnel.

To date, nearly 7,000 such awards have been made, covering training in research, special clinical study, physical therapy, occupational therapy, social work, orthopedic nursing, and administrative nursing.

U.S. PHS Recommends Limiting Mass TB X-ray Surveys

Discontinuation of the mass x-ray method of tuberculosis detection has been recommended by the U.S. Public Health Service.

It urged that surveys be limited to "high risk" groups such as hospitalized persons, low-income groups, migrant workers, and persons known to be exposed to the disease.

Decisions on which groups should get x-rays should be made by local authorities, the service said, and recommended x-rays only for persons with positive skin test reactions.

Reasons behind the recommendations according to the service, are the gains in coping with tuberculosis made in the last 15 years, and the concern felt regarding the cumulative effects of radiation exposure. The new policy was announced during a recent meeting of state and territorial health officers.

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LEGGE SYSTEM

BOOK CORNER

(Continued from page 72)

hallucinogens, sedatives, ataraxics, and analeptics, and shows the effect of each type on the mind and emotions. He also gives an easily comprehended description of the human brain and some of its chemical and physical processes.

The specific drugs discussed include mescaline, marihuana, opium, the barbiturates, and amphetamine. He points out that cocaine, while not an addicting drug "can make a man dangerous, whereas opiates do not."

The use of drugs in mental illness and the possibility of a chemical disturbance of metabolism as a basis for schizophrenia are covered.

The problem of alcoholism is also discussed. The author emphasizes that both the drug addict and the alcoholic are equally sick and that present legislation enacted to control narcotics traffic is of little help to those enslaved by drugs.

An appendix containing structural formulae of chemopsychiatric drugs, as well as a biography and index, are included.

New Radiation Hazard Guide

"Protection Against Neutron Radiation up to 30 Million Electron Volts" is the title of an 88-page pamphlet recently issued by the National Bureau of Standards as Handbook 63.

The detailed pamphlet is based on what is believed to be the best information available. It reflects the opinion of the National Committee on Radiation Protection that recommended limits for maximum permissible doses of ionizing radiations could be substantially lowered.

A section on neutron radiation gives rules deemed essential for proper protection.

Other chapters cover the present status of physical and biological information, and radiation protection in installation and operation of neutron sources. A list of further references is appended.

The pamphlet may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. for 40¢ a copy.

New England Hospitals

NEW ENGLAND HOSPITALS. By Leonard K. Eaton. Ann Arbor: The University of Michigan Press. 1957. 282 pp. $6.

In 1790, few people in New England had ever seen a hospital. By 1833, hospitals had become a New England tradition. This book describes those formative years and the impact of hospitals on the people.

In this period, a sense of social obligation and the influx of European ideas led public-spirited citizens of the rising merchant class to establish hospitals.

The part played by doctors as well as other interested groups is discussed by the author, who places the hospital in its total cultural perspective.

Origins of the Massachusetts General Hospital in Boston, and the Hartford (Conn.) Retreat, a mental hospital now known as the Institute of Living, are described. Early hospital architecture, planned by outstanding authorities of the day, is described, and several illustrations and plates are included. Mr. Eaton is assistant professor, College of Architecture and Design, University of Michigan.

The book outlines the formative period of mental institutions and the beginning of medical and surgical treatment at various hospitals, although, the author notes, inadequate clinical and diagnostic records make a complete history difficult.

Also portrayed is the development of Massachusetts General Hospital as a teaching center, the only one at which much research was carried on in the early days.

Excellent standards were set in hospital architecture and administration, and also in the tradition of clinical teaching and research, the author points out. Foundations were thus laid for development of the hospital into an institution of increasing value to society.

More Hospitals in Suburbs Foreseen in Future

Doctors and hospitals will follow their patients to the suburbs during the coming years. This was among the predictions made by Julian P. Price, M.D., Florence, S. C., in the *Journal of the A.M.A.* (January 4, 1958).

Dr. Price, a trustee of the A.M.A., predicted the changes to come during the next 30 years. Foreseeing that the trend toward specialization will continue in the medical profession, he said that there will be an increase in group practices in clinics.

Dr. Price predicted that the present hospital building program will continue, but the emphasis will be on more hospitals in suburban areas and smaller communities. They will have more private and semiprivate accommodations than they will wards. The large institutions in metropolitan areas will add special wings for the care of the convalescent, the chronically ill, and the patient who needs rehabilitation.

"Groups of hospitals in large cities will endeavor to coordinate their activities to prevent duplication of personnel, equipment, and effort, and thus reduce costs and increase efficiency," Dr. Price stated.

Survey Reveals Inadequacy Of Mental Hospital Staffs

Only 28 states can claim adequate staffs in public mental hospitals and these usually in only one of five personnel categories.

A recently released report by the American Psychiatric Association, based on a 1956 survey, shows a need for 63,344 employees including physicians, psychologists, registered nurses, other nurses and attendants, and social workers to bring total hospital personnel to 160,072. According to the report, in none of the five categories does the national average approximate standards.

The greatest shortage, the survey reveals, is in registered nursing staffs. Registered nurses account for nearly half of the additional number of personnel needed. The national average is only 19.4 percent of the number set as the minimum. The total shortage reported is 29,900.

No state showed an adequate number of registered nurses or social workers. The national average in this category was 36.4 percent of the number set by APA standards.

Only one state has an adequate number of physicians — Kansas, with 150.9 percent of the minimum number needed. Just 15 states have more than 50 percent of the total number of physicians needed.

The number of psychologists is adequate in 16 states but the national average shows that the overall percentage is low.

Southern states did not fare well in the survey. Maryland was the only state showing some adequacy of staff in some categories. Kansas was listed among the top 10 states for all five categories and only Connecticut, Delaware, the District of Columbia, Iowa, and Nebraska were among the top 10 in three categories.

Coordinate Rehabilitation Services in Milwaukee

A program to coordinate the rehabilitation of handicapped persons who require a variety of skilled services has been initiated in the Milwaukee area. Marquette University School of Medicine, through the aid of a federal grant, has appointed Mrs. Alice H. Sanders to coordinate rehabilitation services.

Plans for the project were developed by the Community Welfare Council of Milwaukee. The program will be directed by an executive committee, made up of John S. Hirschboeck, M.D., dean of the school, chairman, and representatives of Goodwill Industries, Curative Workshop of Milwaukee, Jewish Vocational Service, and State Department of Vocational Rehabilitation.

Harold Cooke, M.D., associate in medicine at the school, will act as medical consultant for the program, and will coordinate the teaching of rehabilitation to medical students.

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SCANNING

(Continued from page 7)

been developed by three National Institutes of Health physicians. Called the Bentonite flocculation test (BFT), the procedure can be performed in a few minutes, making it possible to complete 100 or more a day.

John Bozicevich, M.D., Jules Freund, M.D., and Joseph Bunim, M.D., developed the test which they said had been 80 percent effective to date.

Basis for the test is the fact that patients with active rheumatoid arthritis have a "rheumatoid factor" in their blood which will react with the colloidal clay, Bentonite. The clay is mixed with normal human gamma globulin and placed on a slide, after which a drop of blood from the person being tested is added to it. The Bentonite particles will flocculate within a few minutes if the test is positive.

Envisions Future Hospitals As Preventive Centers

"The hospital is still only a repair shop where broken bodies are sent to be mended. Some day it will also be a maintenance shop where the most intricate mechanism in the world will be sent to find out how it can better be cared for to prevent damage."

This prediction was made by Theodore G. Klumpp, M.D., member, Federal Council on Vocational Rehabilitation, and president, Winthrop Laboratories. Dr. Klumpp spoke before the council on scientific session of the American Dental Association, at its recent meeting in Miami, Fla.

Among the services offered by general hospitals in the future, Dr. Klumpp said, would be outpatient health maintenance clinics, diagnostic facilities, bed care for long-term illness, rehabilitation services, and home care and visiting nurse services. Additionally, there would be close relationship with other community agencies, designed to restore the individual to the highest level of economic and social usefulness.

Dr. Klumpp called on the public, industry, and government to provide increased financial aid to meet health needs, co-ordinated with "more efficient use of our professional and technical personnel." Also vital, he added, is education to stimulate the public to budget health costs more extensively through insurance, which he termed the best large-scale voluntary solution for the average family.

Further education is needed to inform the public that health care today is a "bargain," he stated. Over the past 20 years, he pointed out, only four percent of personal disposable income has gone for medical care, including drugs.

Will Power, Not Pills, Cuts Smoking, Study Shows

It's will power and not pills that breaks the smoking habit, according to a British physician.

Dr. William White of Oxford, England, proved his point with 60 volunteers who wished to stop smoking or smoke less. Each was given a box of pills with instructions to take one every two hours. Volunteers did not know that half the group got drugs which are supposed to induce nausea in a smoker while the other half received placebos.

After two weeks, a fourth of the group had stopped smoking or had cut down, one-half of the group had cut down some, and the remainder showed no change in their smoking habits.

Dr. White's study showed that the smokers who quit or cut down were divided equally among those who had gotten the drugs and those who had received the placebos.

Missing Enzyme System In Man Identified

Inability of the human body to produce vitamin C has been traced to a "missing step" in body metabolism peculiar to man, monkeys, and guinea pigs.

J. J. Burns, Ph.D., biochemist, National Heart Institute, recently reported results of a study which showed that all other mammals have the ability to produce vitamin C. However, it was found, he said, that man, monkeys, and guinea pigs lack an enzymatic step that converts a product of sugar metabolism, L-gulonolactone, into vitamin C, or ascorbic acid.

The missing enzyme system was discovered by tracing the fate of L-gulonolactone when given to rats, which converted it to vitamin C, and to guinea pigs, which did not.

Previous work had established that the compound is a forerunner of vitamin C in the liver of a rat.

Further studies with human, rat, monkey and guinea pig livers in the test tube corroborated the findings of the "missing step."

Scholarships Are Offered For Housekeeping Course

Ten scholarships, each for $300, have been made available by Huntington Laboratories for the tenth annual Short Course in Hospital Housekeeping, offered by Michigan State University, East Lansing, March 31 to May 23. The Laboratories will underwrite a share of the basic costs of the course, but will have no part in selecting the winners.

Students will become acquainted with the latest hospital housekeeping technics of sanitation and administration. To provide maximum individual instruction, enrollment is limited to 40 people.

Subjects include sanitation; care of floors, walls and equipment; hospital safety; personnel management; and effective communication. Certificates will be issued upon satisfactory completion of the course.

The course is sponsored by the American Hospital Association in co-operation with the university. Any AHA-approved hospital employee or employee-to-be is eligible for selection by her administrator or supervisor to compete for a scholarship.

Details may be obtained by writing Huntington Laboratories Educational Fund, American Hospital Association, 18 E. Division St., Chicago 10. Deadline for entries is March 1.

Red Cross Blood Bank Tops 21,000,000 Pints

Since starting its civilian blood program ten years ago, the Red Cross has collected more than 21,000,000 pints of blood, according to a recent announcement by the group.

It now supplies blood to 3,900 hospitals, 2,300 of which get their total blood supply from the organization. It has 51 centers that collect blood in 1,100 counties in 40 states and the District of Columbia.

Missouri Woman Honored For Work in Hospital Field

Mrs. Irene McCabe has been honored as one of ten "Women of Advancement for 1957" of the Greater St. Louis area.

Mrs. McCabe, executive secretary, Missouri Hospital Association, has been active in health and welfare organizational activities for the last 20 years. Since 1940 she has been public relations director for Blue Cross in Missouri.

She helped establish an accredited practical nurses' training program in St. Louis, and as secretary, Missouri League for Nursing, planned and organized workshop sessions for operators of nursing homes and hospitals on the role of the practical nurse.

She was executive secretary of an eight-member committee which surveyed conditions at three city-operated hospitals in St. Louis in 1956.

Mrs. McCabe has just completed a three-year term as member of the American Hospital Association's council on association services.

New York Council Reports On Health Service Fees

Studies on fee charging policies and practices for social and health services in the New York area indicate a wide diversity in fees charged to persons in the same economic situation.

These studies are cited in a report on the determination of reasonable fees for social and health services, recently issued by the Community Council of Greater New York. The report, "How to Measure Ability to Pay for Social and Health Services," was prepared by the budget standard service of the council's research department.

Client payments are now an important source of voluntary agency income in many areas of service, according to J. Donald Kingsley, executive director of the council. He pointed out the need for wider agreement on acceptable bases for fee charging. The report is designed to facilitate efforts to achieve more uniform policies and greater comparability in fees charged various income groups for similar services, he said.

The publication is available, at $1 a copy, from the council's Publications Department, 44 East Twenty-third Street, New York City.

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First Fellows Named By Hospital Accountants

The American Association of Hospital Accountants has announced certification of 19 of its members as the first fellows of the association. Forty-seven candidates took the fellowship examination.

The following are the new fellows: Sister Ruth Marion, assistant controller, St. Vincent's Hospital, New York City; Kathryn E. Holland, chief accounting officer, Hospital of the Good Samaritan, Los Angeles; Ivy E. Lowrey, Jr., office manager, Methodist Hospital, Memphis, Tenn.

Joseph A. Levi, controller, Long Island Jewish Hospital, New Hyde Park, N.Y.; Robert M. Shelton, administrator, Orthopaedic Hospital, Trenton, N. J.

Sister Mary Charles, business manager, St. Mary's Hospital, Troy, N.Y.; Herbert E. Long, assistant business manager, McLaren General Hospital, Flint, Mich.

William E. Culbertson, business manager, Wood County Hospital, Bowling Green, O.; Stanley W. Shepard, controller, New Britain (Conn.) General Hospital; Sister Joan Francis, chief accountant, St. Joseph's Hospital, Elmira, N.Y.

Clifford C. Losberg, Jr., business manager-assistant controller, Ochsner Foundation Hospital, New Orleans; Hilmar M. Lohmann, assistant administrator, Lutheran Hospital, St. Louis; Alice W. Sandstrom, business manager, Children's Orthopedic Hospital, Seattle; Patrick I. Fenlon, controller, Hurley Hospital, Flint, Mich.

Hospitals More Productive Recent Study Shows

General hospitals today are "far more productive than they were two decades ago," says the Health Information Foundation in the September, 1957 issue of its statistical bulletin, *Progress in Health Services*.

The HIF pointed to recent improvements by hospitals in such factors as number of patients served, number of lives extended, and amount of pain and disability reduced.

Findings were based on a preliminary report of a Foundation-sponsored study of the records of all patients admitted to Beth Israel Hospital, Boston for the years 1932 and 1952. These years were chosen as being representative of distinct eras in medicine and hospital care — before and after the current era of sulfa drugs, antibiotics, and other notable advances in therapy.

The annual number of patients admitted to this nonprofit community hospital more than doubled during the 20-year period, rising from 3,767 to 7,820, partly because beds increased from 194 to 234. But even more important, says the HIF, were the more extensive use of existing beds (occupancy rose from 70 percent to 93 percent) and a reduction in the average length of stay, from 12.8 to 9.8 days. The result was an increase in the annual number of patients per bed, from 19.4 to 34.9.

Annual death rate declined by a third, from 52 per 1,000 to 34 per 1,000, even though the average age of patients advanced from 35 to 47 years.

Along with an increasing proportion of middle-aged and elderly patients, more young children were admitted in 1952.

A growing proportion of patients require medical rather than surgical treatment.

Army Program to Offer Advanced Administration Degree

Four officers from Brooke Army Medical Center, Fort Sam Houston, Tex., have been appointed assistant professors at Baylor University, as part of the hospital administration program at the Medical Center's Army Medical Service School.

They are Lt. Col. Ingalls H. Simmons, director department of preventive medicine, Lt. Col. Albert B. Hunt, Lt. Col. Seth H. Linthicum, Jr., and Maj. Claude B. Hooker, all of the department of administration.

Through affiliation with Baylor, students at the army school who have the academic requirements may earn a master's degree in hospital administration.

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405.	414.	423.	432.	441.	450.	461.	470.	A-479.	A-488.	A-497.
406.	415.	424.	433.	442.	451.	462.	A-471.	A-480.	A-489.	471.
407.	416.	425.	434.	443.	452.	463.	A-472.	A-481.	A-490.	
408.	417.	426.	435.	444.	455.	464.	A-473.	A-482.	A-491.	

Send more information on items circled. February 1958.

Name ..... Position .....
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Address .....

City ..... Zone..... State.....

BUYER'S GUIDE Information Service

400. Steam sterilizers
401. X-ray film cutter
402. Orthopedic mattress
403. Paper receptacle
404. Holding mitt
405. Dishwashing compound
406. Sponge
407. Traction table
408. Oxygen tent
409. Cylinder dolly
410. Rust eradicator
411. Nebulizer
412. Conductive flooring
413. Ice-cubemaker
414. Recovery bed
415. Serving carts
416. Patient hood
417. Plastic trays
418. Dictating machine
419. Bedside aspirator
420. Blood filter set
421. Precision balance
422. Tube holder
423. Bottle hanger
424. Phonocatheter
425. Deepfreeze
426. Slipper
427. Steel bucket
428. X-ray projector
429. Narcotics dispenser
430. Plastic goniometer
431. Ice storage bins
432. Mesh matting
433. Bussing cart
434. Bedpan washer
435. Autoclave tape
436. Packing strips
437. Supply injector
438. Stopper bottle
439. Cane seat
440. Humidity canopy
441. Air purifier
442. Gas sterilizer
443. Coffee server
444. Disposable Petri dish
445. Inhalator kit
446. Chromatograph
447. Epidural needle
448. Door control
449. Slide dispenser
450. Transformer
451. Sterile catheters
452. Ultrasonic cleaner

NEW LITERATURE

455. Suture catalog
456. Orthopedic equipment catalog
457. Food conveyor
458. Paper service
459. Electrophoresis booklet
460. Teaching aid
461. Emergency lighting
462. Fluid therapy
463. Vitamin booklet
464. Calcium bulletin
465. Flow meter data
466. Glass apparatus
467. Hand trucks
468. Microradiography
469. Sterile tray booklet
470. Prune recipes
471. Furniture catalog

FROM THE ADS—BROCHURES

A-471. Clay-Adams, Inc., catalog
A-472. J. A. Deknatel & Son, Inc., sample and leaflet
A-473. De Puy Manufacturing Co., Inc., traction frame booklet
A-474. Blickman Hospital Equipment, booklet
A-475. Flex-Straw, samples and literature
A-476. Hill-Rom Co., Inc., catalog
A-477. Franklin C. Hollister Co., booklet
A-478. Lawton Co., instrument booklet
A-479. Walter G. Legge Co., Inc., floor maintenance materials brochure
A-480. Lehn & Fink Products Corp., literature and samples
A-481. Macbick Co., CSR data file (descriptive literature, specifications and rough-in drawings)
A-482. Stephenson Corp., leaflet
A-483. West Chemical Products, Inc., leaflet
A-484. Admiral Corp., booklet and price list
A-485. Aeroplast Corp., leaflet
A-486. Air Shields, Inc., Dia-Pump folder
A-487. American Sterilizer, bulletins SC-305, SC-312
A-488. ASR SteriSharps, literature and samples
A-489. C. R. Bard, Inc., illustrated brochure
A-490. Bircher Corp., booklet
A-491. Carolina Absorbent Cotton Co., catalog
A-492. Ohio Chemical & Surgical Equipment Co., catalog No. 4708, sutures and needles
A-493. Organon, Inc., oral anticoagulant booklet

SAMPLES

A-494. Huntington Laboratories, Inc., surgical soap
A-495. Massillon Rubber Co., rubber glove demonstration kit
A-496. Desitin Chemical Co.
A-497. Aseptic-Thermo Indicator Co., sterilization kit

400.	409.	418.	427.	436.	445.	456.	465.	A-474.	A-483.	A-492.
401.	410.	419.	428.	437.	446.	457.	466.	A-475.	A-484.	A-493.
402.	411.	420.	429.	438.	447.	458.	467.	A-476.	A-485.	A-494.
403.	412.	421.	430.	439.	448.	459.	468.	A-477.	A-486.	A-495.
404.	413.	422.	431.	440.	449.	460.	469.	A-478.	A-487.	A-496.
405.	414.	423.	432.	441.	450.	461.	470.	A-479.	A-488.	A-497.
406.	415.	424.	433.	442.	451.	462.	A-471.	A-480.	A-489.	471.
407.	416.	425.	434.	443.	452.	463.	A-472.	A-481.	A-490.	
408.	417.	426.	435.	444.	455.	464.	A-473.	A-482.	A-491.	

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